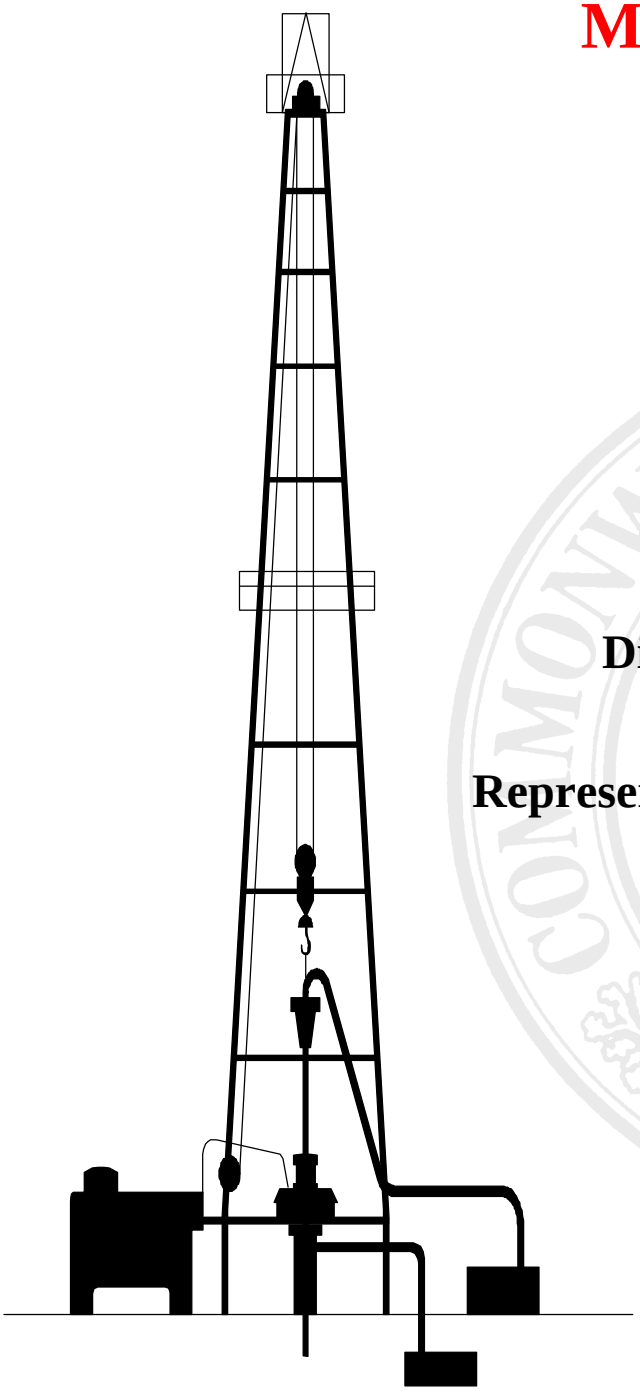
COMMONWEALTH OF KENTUCKY

OIL AND GAS WELL OPERATOR'S MANUAL



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FOREWORD

For over 100 years, exploration for oil and gas has occurred in the Commonwealth of Kentucky. Conservation of these resources was addressed by the ratification of the interstate compact to conserve oil and natural gas in 1942. This compact was later repealed, amended and re-enacted by joint resolution of the General Assembly in 1948. Regulation regarding these exploration and conservation efforts began in 1960 by the formation of the Kentucky Oil and Gas Conservation Commission and the Oil and Gas Division under the Department of Mines and Minerals. From 1960 until the present, various other agencies have adopted regulations regarding the numerous activities related to the exploration of oil and gas in Kentucky. These agencies, as listed throughout this document, have developed regulations regarding the activities which in many cases overlap and possibly add confusion to the regulated community as to which agency and regulation apply to a given situation. In order to provide a better understanding of all the regulations and agencies responsible for these regulations, this manual was prepared. Use of this manual shall hopefully provide guidance to compliance with the respective regulation of the appropriate agency and the manner under which operations should be conducted.

I wish to acknowledge and express my deep appreciation to the following team members that participated in the preparation of this manual. They include the following: Brian Gilpin, and Marvin Combs from the Division of Oil and Gas, Dan Juett, Jim Sproles and Gene Blair from the Division of Water, James Hale and Tim Hubbard from the Division of Waste Management, Ralph Dennis from the Public Service Commission, Rodney Raby and James Helm from the State Fire Marshal's Office, and Charles P. Susie and Michael Sanders representing the Kentucky Oil and Gas Association. In particular of these, I wish to say a special thank you to Mr. Susie and Mr. Sanders for taking time out from their employment to perform this task.

I would also like to thank with great appreciation the U.S. Department of Energy for the financial support of this effort. It is my firm belief that the development of this document shall serve as a useful tool for achieving compliance and fostering further exploration efforts in the Commonwealth of Kentucky. The Department of Energy should be commended for their support and encouragement of this and other similar projects.

Rick Bender, Director
Division of Oil and Gas

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INTRODUCTION

This handbook was prepared by a task force consisting of representatives from state regulatory agencies and the oil and gas industry under a grant from the U.S. Department of Energy. The purpose of this handbook is to serve as a guidance document and reference manual for oil and gas well operators in dealing with state and federal agencies which regulate the various phases of drilling, production, operation and abandonment of oil and gas wells.

The manual is composed of sections listed in chronological order from Pre-Drilling through Well Abandonment which an operator would typically follow in drilling a well. A simplified step-by-step checklist using this format is included (See Pages ix-xii). A Well Operator's Activity Chart is included describing regulatory agencies' involvement in the various phases of operation (See Pages xiii-xvi). A narrative describing each phase of well operation with regulatory agency requirements is included and listed in the Table of Contents.

The appendix contains directories of state and federal agencies and personnel, regulatory agency forms and other information to assist the well operator in complying with Kentucky statutes and regulations. Forms shown in Appendix B of this manual are for example and are not intended for official use. It is recommended the agency having regulatory control of the form be contacted concerning any requirements for form use and reproduction.

This manual is presented as a general reference and illustrates those practices which have been proven in a safe and workman-like manner to conform to State and Federal regulation at the time of printing. It is beyond the scope of this manual to cite every applicable state and federal regulation and statute, and thus this manual is not intended to take the place of one's responsibility to know and understand all applicable regulations and statutes. Statutes and regulations referred to in this manual are not provided in their complete form. The reader is encouraged to read the full text of each statute and regulation and seek counsel if and when necessary for clarification as to the applicability of each.

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SIMPLIFIED STEP-BY-STEP CHECKLIST (☑) PROCEDURE FOR DRILLING A WELL IN KENTUCKY

Section 1. Pre-Drilling and Permitting A Well

❒ **Prepare a Game Plan** for each well drilled. It is recommended that the operator prepare an overall game plan that incorporates all actions to be undertaken by the operation. This plan should include all impacts to the environment and the rights of all parties involved.

❒ **Post bond** with Division of Oil and Gas. See Page 1.

❒ **Prepare a well plat** of the well location. See Page 2.

❒ **Obtain a well permit.** See Page 5.

❒ **Obtain permits for stream/river crossing.** See Page 7.

❒ **Plan for management and disposal** of waste generated by the operation including construction of the drilling pit. See Page 12.

Section 2. Drilling

❒ **Notify Division of Oil and Gas Inspector** (on permit) 24 hrs. before spudding. See Page 11.

❒ **Construct drilling pit** adequate to contain drilling fluids and prevent flow into streams. See Page 12.

❒ **Contain and dispose of drilling muds/fluids** in accordance with applicable regulations. See Page 13.

❒ **Post drilling permit** at the well site during drilling. See Page 11.

❒ **Set surface or intermediate casing** in accordance with regulations. See Page 14.

❒ **Provide Oil and Gas inspector with total depth,** amount of casing, if run and cement quantity immediately following completion of drilling. See Page 11.

❒ **Contain and clean-up oil spills, leaks, discharges or releases** of pollutants immediately. For reportable spills notify Environmental Response Team 1-800-928-2380. See Page 26.

Section 3. Well Completion and Operation

❒ **File well records** with Division of Oil and Gas 90 days after reaching total depth. See Page 17.

❒ **Register tank battery** with Division of Water within 60 Days after production begins. See Page 17.

❒ **Submit annual production report** to Division of Oil and Gas on or before April 15th for previous year. See Page 28.

❒ **Dispose of waste** in accordance with applicable regulations. See Page 23.

❒ **Contain and clean-up oil spills, leaks, discharges or releases** of pollutants immediately. For reportable spills notify Environmental Response Team 1-800-928-2380. See Page 27.

Section 4. Abandonment and Closure

❒ **Plugging** well in accordance with Inspector's instruction. See Page 31.

❒ **File plugging affidavit** with the Division of Oil and Gas. See Page 31.

❒ **Remove debris** and associated equipment in conjunction with site closure. See Page 31.

❒ **Remove equipment** upon closure of lease activities and contact Division of Water for inactivation of registration. See Page 31.

❒ **Take steps** as necessary in order to prevent erosion and sedimentation including back-fill of pits.

Simplified Step-by-Step Checklist (☑) Procedure for Drilling a Well in Kentucky

❒ **Perform well site reclamation** on severed mineral tracts in accordance with applicable regulations. See Page 32.

❒ **Contain and clean-up oil spills, leaks, discharges or releases** of pollutants immediately. For reportable spills notify Environmental Response Team 1-800-928-2380. See Page 27.

❒ **Assure that all wastes have been properly disposed** and all releases have been cleaned up.

❒ **Request release of bond** upon completion of site closure, filing of records or transfer of wells to another operator. See Page 33.

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WELL OPERATOR'S ACTIVITY CHART

AGENCY ABBREVIATION

DOG-Division of Oil & Gas DOW-Division of Water
DWM-SWB-Division of Waste Management-Solid Waste Branch
DWM-HWB-Division of Waste Management-Hazardous Waste Branch
SFM-Kentucky State Fire Marshal's Office EPA-United States Environmental Protection Agency

ACTIVITY	STATE/FEDERAL REGULATORY AGENCY	PERMIT FEE ($)	PERMIT REQUIRED	REGULATORY AGENCY FORM NO.	ADMINISTRATIVE REGULATION or STATUTE TIME	ADMINISTRATIVE REGULATION or STATUTE	REMARKS
I. PRE-DRILLING				ED-5,ED-6			Blanket Bond-$10,000
Bonding of Well	DOG	Individual Bond Based on Depth	No	ED-14 ED-16 ED-20	Life of Well	805 KAR 1:050 KRS 353.590	Individual Well Bond Based on Depth. **PAGE 1**
Well Plat	DOG	None	No	Approved Well Plat	Less Than 1 Year Old	805 KAR 1:030 KRS 353.590(4)	Reg. Eng. & L.S.-Coal Reg. L.S.-Non-Coal **PAGE 2**
Shallow Wells	DOG	Permit Fee ($300)	Yes	ED-3	1 Year	KRS 353.510 KRS 353.610	Less than 4,000 Ft. or Below Devonian Shale. **PAGE 3**
Deep Wells	DOG	Permit Fee ($300)	Yes	ED-3 ED-7	1 Year	805 KAR 1:100 805 KAR 1:130	4,000 Ft. or Deeper East of 84Deg. 30 Min. **PAGE 3**
Well Spacing Variance	DOG	None	No	None	None	KRS 353.620	Director Approval **PAGE 4**
Well Permits	DOG	$300.00	Yes	Approved Well Plat ED-1	1 Year	KRS 353.570 KRS 353.580 KRS 353.590	Required on All Wells Drilled, Deepened, or Re-Open, Spud Within 1 Yr. **PAGE 5**
Well Permits In Coal Regions	DOG	Permit Fee ($300)	Yes	ED-1	1 Year	KRS 353.050	. 15 Day Hold on Permit for Coal Co. Evaluation. **PAGE 5**
Well Permits In Gas Storage Fields	DOG	Permit Fee ($300)	Yes	ED-1	1 Year	805 KAR 1:080	Notify Gas Storage Field Operator. **PAGE 6**
Well Permits on Severed Mineral Tracts	DOG	$100.00	Yes	ED-1 ED-10	1 Year	805 KAR 1:170 KRS 353.5901	$100 Mediation Fee to Surf. Owner &Oper. **PAGE 6**
Crossing Wetlands, Wild Rivers, Stream Discharge	DOW	None	Yes	Construct across or along a stream	Prior to Construction	401 KAR 4:060 KRS 151.125	Stream Obstruction Requires Permit. **PAGE 7**
Well Site Waste Mgmt. Guidelines	DWM-SWB	None	None	None	None	401 KAR 30:031 401 KAR 47:030	Must Meet Environmental Standards. **PAGES 13 & 20**
ObjectionWell by Coal Oper.	DOG	None	No	None	None	KRS 353.060	D.O.G. Hearing **PAGE 5**
Twin Wells	DOG	Permit Fee ($300)	Yes	Well Plat ED-3	1 Year	KRS 353.610(2)	Wells Must Produce From Different Zones. **PAGE 8**

ACTIVITY	STATE/FEDERAL REGULATORY AGENCY	REGULATORY FEE ($)	PERMIT REQUIRED	AGENCY FORM NO.	TIME	ADMINISTRATIVE REGULATION or STATUTE	REMARKS
Directional or Horizontal Wells	DOG	Permit Fee ($300)	Yes	Well Plat ED-3 ED-7 ED-8	1 Year	805 KAR 1:020 805 KAR 1:140 KRS 353.550	Wellbore Cross-Section Revised Well Plat B.O.P. Required **PAGE 9**
Pooling of Oil & Gas Tracts	DOG	None	No	None	None	KRS 353.630	Hearing Required. **PAGE 4**
II. DRILLING							Notify Inspector 24 Hrs.
Spudding-Drilling	DOG	See Well Permit	Yes	ED-3	1 Year	KRS 353.660	Before Spud. Contact Inspector at Total Depth. **PAGE 11**
Drilling Pits	DOW	None	No	None	30 Days	401 KAR 5:090 KRS 151.125	Pits Must Contain all Fluids to Prevent water Contamination. Close After 30 Days. **PAGE 12**
Protection of Fresh Water Aquifers	DOG	None	No	None	None	805 KAR 1:020 KRS 353.520	Casing Set 30' Below Aquifer, Cement to Surf. **PAGE 14**
Drilling Through Minable Coal Seams	DOG	None	No	None	None	KRS 353.080 KRS 353.100	Casing Set 30' Below Seam, Cement to Surf. **PAGE 14**
Drilling Fluids	DWM-SWB	None	Permit-By-Rule	None	None	401 KAR 31:030 401 KAR 45:060 KRS 224.50-760	Disposal Requirements. **PAGE 13**
	Ky. Geol. Survey DOG	None	No	None	None		Required if Requested By Ky. Geol. Survey.
Drill Samples	DWM-SWB	None	Permit-By-Rule	None	None	401 KAR 31:030 401 KAR C.(30) 401 KAR 45:060	Must Meet Disposal Requirements. **PAGE 14**
Drilling Deeper Than Permitted Depth	DOG	Individual Bond May Be Increased with Depth	No	None	None	805 KAR 1:120 KRS 353.520	Notify D.O.G. Immediately May Require Revision of Permit & Bond. **PAGE 15**
Blow-Out Preventer [BOP]	DOG	None	No	ED-7	None	805 KAR 1:130 805 KAR 1:140 KRS 353.520	3,000# Test Pressure 1,500# Work Pressure **PAGE 11**
III. COMPLETION-OPERATION							File ED-3 90 Days After
Well Completion Filing of Well Records	DOG	None	No	ED-3 ED-38	90 Days 30 Days	KRS 353.660	Drilling, File Electric Logs. File ED-38 if Plugged. **PAGE 17**

ACTIVITY	STATE/FEDERAL REGULATORY AGENCY	FEE ($)	PERMIT REQUIRED	REGULATORY AGENCY FORM NO.	TIME	ADMINISTRATIVE REGULATION or STATUTE	REMARKS
Registration of Oil & Gas Facility [Tank Battery]	DOW	None	Yes	Oil & Gas Facility Registration Form	60 Days	401 KAR 5:090 KRS 151.125	Sign Posted with Comp. Name, Address, Phone, & DOW Registration No. **PAGE 17**
Storage and Piping System Compliance	SFM	$50.00	Yes	Const. Above Grd. Tanks Pet. Prod. Haz. Mat.	Before Construction	815 KAR 10:050 NFPA 30 Ky. Fire Prev. Code	Pipe & Tanks Must Comply with NFPA 30 & Current Edition of Ky. Fire Prev. Code. **PAGE 18**
Danger Signs on Oil Storage Facilities	DOG	None	No	None	None	KRS 353.656	Posted on Oil Tank Battery **PAGE 18**
Spill Prevention Control and Countermeasure (SPCC) Plan	DOW	None	No	SPCC Plan	Upon Facility Start-up	EPA 40 CFR Parts 110 & 112 401 KAR 5:090 KRS 151.125	Plan Must Be In Accordance With 40 CFR 112. **PAGE 19**
Transfer of Ownership-Oil & Gas Facility	DOW	None	No	Transfer of Ownership	Upon Transfer of Owner Operatorship	401 KAR 5:090 KRS 151.125	New Operator to File Updated Regis. Form. **PAGE 20**
Transfer of Well Ownership	DOG	$25/Well	No	ED-13	None	KRS 353.590	Successor Operator Must Bond Well(s) Prior to Operation. **PAGE 21**
Holding Pits	DOW	$100.00	Yes	Construction & Operation Plan	30 Days Before Construction	401 KAR 5:090 KRS 151.125	Pit Utilized for Storage of Produced Water. **PAGE 21**
Improperly Abandoned Wells-Temporary Abandoned Permits	DOG	None	Yes	Up To 2 Years	Up To 2 Years	KRS 353.550	File with Completion Report, Inspector Must Approve T.A. **PAGE 22**
Injection Wells Class II Wells	EPA DOG	None	Yes No	7520-6 ED-23	None	40 CFR 144 805 KAR 1:020	EPA (404-347-3379) Requires Mechanical Integrity Test. **PAGE 22**
Produced Water Disposal	DOW	Depends Upon Disposal Method	Yes	Disposal of Produced Water K.P.D.E.S.	None	401 KAR 5:090 KRS 151.125	Disposal of Produced Water Must Not Violate Water Qual. **PAGE 23**
Vacuum Pumps	DOG	None	No	ED-9	None	805 KAR 1:040 KRS 353.560	Identify All Wells Within 1,000 ' **PAGE 24**
Operator Classification of Hazardous Waste	DWM-HWB	None	No	None	None	401 KAR 32:010 401 KAR Chap. 30 & 31 KRS 224.46-510	Generate less than 220 Lbs. Hazardous Waste Per Month **PAGE 25**
Groundwater Protection Plan (GPP)	DOW	None	No	None	Upon Facility Startup	401 KAR 5:037 KRS 224.01-010 KRS 224.10-100	Have an acceptable GPP in accordance with KRS 224 **PAGE 25**

ACTIVITY	STATE/FEDERAL REGULATORY AGENCY	FEE ($)	PERMIT REQUIRED	REGULATORY AGENCY FORM NO.	TIME	ADMINISTRATIVE REGULATION or STATUTE	REMARKS
Reporting Spills, Bypasses Leaks of Oil Produced Fluids and Chemicals	DOW	None	No	None	Report Spills Immediately	401 KAR 5:015 401 KAR 5:090 KRS 224.10-100 KRS 224.70-110 KRS 151.125	Spills that reach water ways and have the potential to impact contact DOW ERT immediately at 1 800 928-2380 **PAGE 26**
	DWM-HWB	None	No	None	Report Spills Immediately	KRS 224.01-400 KRS 224.01-405	Otherwise on soil, report to DWM ERT if more than 25 Gal of oil or 75 Gal of diesel fuel at the above number. **PAGE 26**
N.O.R.M.	Cabinet for Human Resources	None	No	None			Monitor Tubulars for Radiation Exposure. **PAGE 27**
Oil & Gas Production Reporting	DOG	None	No	ED-17	*April 15	KRS 353.206	*File by April 15 for Prior Yrs. Prod. **PAGE 28**
IV. ABANDONMENT & CLOSURE					File Affidavit		Contact Inspector for
Plugging of Wells	DOG	None	No	ED-38	30 Days After Plugging	KRS 353.120	Plugging Instructions. **PAGE 31**
Termination of Oil & Gas Facility	DOW	None	No	None	After Operation Ceases	401 KAR 5:090 KRS 151.125 KRS 224.10-100	Tanks Removed, Site Reclaimed. **PAGE 31**
Well Site Reclamation on Severed Mineral Tracts	DOG	None	No	ED-10	1 Year After Plug & Abnd.	805 KAR 1:150 KRS 353.5901 KRS353.590(5)	Inspection of Site 1 Yr. After Plugging and Reclamation of Well Site. **PAGE 32**
Bond Release	DOG	None	No	None	None	805 KAR 1:050 KRS 353.590(5)	Well Plugged, Records Filed or Wells Transferred. **PAGE 33**
Bond Forfeiture	DOG	None	No	None	45 Days After Notification	805 KAR 1:050 KRS 353.590(5)	Operator May Get Extension. **PAGE 33**
V. INSPECTION & ENFORCEMENT						KRS 353.220	Inspectors May
Division of Oil & Gas Inspection & Enforcement Policy	DOG	None	No	None	Anytime	KRS 353.990 KRS353.991 KRS 353.992	Inspect Any Well Site At Any Time. **PAGE 35**
Division of Water & Waste Management Insp. & Enf. Policy	DOW DWM	None	No	None	Anytime	401 KAR 5:090 KRS 224.10-100 KRS 224.10-410 KRS 224.99-010	Inspectors May Inspect Any Oil & Gas Facility At Any Time. **PAGE 35**
Public Service Commission Enforcement Policy	PSC	None	No	None	Anytime	KRS 278.900 KRS 278.992	Inspectors May Inspect Any Pipeline Facility At Any Time. **PAGE 35**

REGULATORY AUTHORITY

Division of Oil and Gas

The Department of Mines and Minerals, Division of Oil and Gas is responsible for:

- Regulating the bonding, permitting, drilling, casing, operating and plugging of all wells in Kentucky.
- Protecting the correlative rights of mineral owners.
- Conserving and protecting the crude oil and natural gas reserves of Kentucky.
- Insuring fresh water aquifers and mineable coal seams are protected from unreasonable damage due to production of crude oil and natural gas.

Statute-KRS Chapter 353

Division of Water

The Department for Environmental Protection, Division of Water is responsible for:

- Preserving the water resources of Kentucky.
- Prevention, abatement and control of all water pollution.
- Regulating water pollution from oil and gas facilities.

Statute-KRS Chapters 146, 151 and 224

Division of Waste Management

The Department of Environmental Protection, Division of Waste Management is responsible for:

- Insuring that waste management activities within Kentucky are conducted in a manner to protect human health and the environment.
- Regulating hazardous waste, solid waste, special waste, abandoned sites, underground storage tanks and remediation of chemical and petroleum releases to the environment.

Statute-KRS Chapter 224

Regulatory Authority

Public Service Commission

The Public Service Commission is responsible for:

- Inspecting and safety management of, natural gas transmission within the state and utility owned lines, compressor stations, meters, regulators and other pipeline facilities operated by oil and gas companies and natural gas utilities in Kentucky.
- Providing inspection and approval for farm taps.
- Responding to reported gas line leaks and potential hazards relating to state regulated pipelines.
- Regulating the rate utilities charge consumers for natural gas usage.
- Insuring the quality of gas for consumers.

Public Service Commission responds to reported gas line leaks, potential hazards relating to pipelines as well as dictate the rate utilities charge consumers for natural gas usage.

Statute-KRS Chapter 278

State Fire Marshal's Office

The Kentucky State Fire Marshal is responsible for:

- Inspecting to insure safe storage and handling of all flammable and combustible liquids near oil or gas wells and related production facilities.

Statute-KRS Chapter 227

Underground Injection Control Section

The U.S. Environmental Protection Agency, Underground Injection Control Section is responsible for:

- Preventing contamination of groundwater supplies from underground injection.
- Regulating Class II wells which are injection and/or disposal wells associated with the production of oil and natural gas.

Federal Regulation-40 CFR 100 to 149

I. PRE-DRILLING

Bonding

Division of Oil and Gas

The Division of Oil and Gas requires a performance bond to be on file before a well is drilled or acquired from another operator. This bond is posted to insure the proper plugging and abandonment of wells and to insure the filing of well records with the Division. Should an operator fail to correct a violation, the bond may be seized by the Commonwealth of Kentucky.

- **BLANKET BOND** of $10,000 covers all wells operated by a producer and shall be on file at the Division of Oil and Gas prior to permitting or acquiring wells. Any violation against a well listed under a Blanket Bond will prohibit any future wells being permitted or transferred under that Blanket Bond. Forfeiture of any portion of a blanket bond will prohibit any additional operation.

- **INDIVIDUAL BONDS** should accompany the well permit application when it is submitted to the Division of Oil and Gas. Bonds for individual wells are based on the well's total depth as listed below:

DEPTH (FT.)	BOND AMOUNT ($)
0-500'	$ 500
501'-1,000'	$1,000
1,001'-1,500'	$1,500
1,501'-2,000'	$2,000
2,001'-2,500'	$2,500
2,501'-3,000'	$3,000
3,001'-3,500'	$3,500
3,501'-4,000'	$4,000
4,001' or Deeper	$5,000 or an amount set by the Oil and Gas Conservation Commission.

The various types of bonds accepted for both blanket and individual bonds are listed below:

- **CASH**-Certified, Cashier's or Bank check or CASH
- **SURETY**-Obtained from an insurance company with attached "Power of Attorney"
- **LETTER OF CREDIT**-Obtained from bank or other financial institution
- **CERTIFICATE OF DEPOSIT**-The Division may accept a $5,000 Certificate of Deposit in combination with $5,000 in another form for an approved blanket bond. Verification of the certificate along with the original Certificate of Deposit is filed at the time of posting of the bond.

Regulation-805 KAR 1:050
Statute-KRS 353.590
Forms-Surety, Letter of Credit, Certificate of Deposit (Forms ED-5, ED-6, ED-16 and ED-20, See Appendix B)

Well Plat

Division of Oil and Gas

Before a well is permitted, the operator shall have a map or plat of the proposed well location drawn on 8 1/2" by 14" bond or tracing paper prepared by a land surveyor registered in Kentucky. If the well is in coal producing regions of Eastern Kentucky (Appalachian Basin) or Western Kentucky (Illinois Basin) both a registered engineer and registered land surveyor shall certify the plat. A map is located in Appendix A identifying coal producing regions of Kentucky. The plat shall include and be prepared as follows:

- **Proposed well location, elevation and distance from property lines.**
- **Location of well by bearing and distance, relative to two permanent monuments that appear on a 7.5' USGS Topographic Maps.**
- **Latitude and longitude and Carter Coordinates for the proposed well location.**
- **Scale of the plat drawn on 1" equals 100', 200', 300', 400', 500', or 600'.**
- **All oil or gas producing wells within 1,000' of the proposed well.**
- **Lease boundary, surface owner, mineral royalty owner and adjacent mineral owner.**
- **Elevation as determined by instrument or calculation.**
- **Certification of the plat by the surveyor, and engineer if required, reading as follows: *"I hereby certify that the above plat is accurate and correct and satisfies the requirements of 805 KAR 1:030 to the best of my knowledge and belief,"* followed by the written signature of the person preparing the plat, mailing address, registration number and telephone number.**
- **Date of plat within one year of date of application of permit.**

After a well is permitted, the well location shall not be changed. Permitted wells which are drilled at a location other than the coordinates listed on the plat and permit are considered as wells drilled without a valid permit.

A well shall not be drilled within 150 feet of any building without a signed waiver from the building owner. The waiver shall be included with the well plat and permit application. An example of a properly prepared well plat is found in Appendix A.

Regulation-805 KAR 1:030
Statute-KRS 353.590 Section 4
Time-Plat shall be less than 1 year old when submitted with permit application

Shallow Well Definition and Spacing Requirements

Division of Oil and Gas

Oil and gas wells in Kentucky are classified as “shallow” or “deep” based on the total depth and location. Shallow wells are wells drilled to depths less than 4,000' or where the base of the Devonian Shale exceeds 4,000' in Eastern Kentucky. Minimum spacing for shallow oil and gas wells is described as follows:

- **Oil wells in non-coal areas drilled to a depth from the surface to 2,000' shall be spaced 200' from the property line and 400' from an offset well producing from the same zone.**
- **Oil wells in non-coal areas drilled to a depth between 2,000' and the deep well depth shall be spaced a minimum of 330' from the property line and 660' from an offset well producing from the same zone.**
- **Oil wells in coal areas drilled from the surface to the deep well depth must be spaced 330' from the property line and 660' from an offset well producing from the same zone.**
- **Gas wells drilled to a depth from the surface to the deep well depth must be spaced 500' from the property line and 1,000' from an offset well producing from the same zone.**

Statutes-KRS 353.510 and 353.610

Deep Well Definition and Spacing Requirements

Division of Oil and Gas

A deep well is any well drilled to a depth that exceeds 4000' or to the base of the Devonian Black Shale in Eastern Kentucky if the base of the black shale exceeds 4000'. Unit sizes for deep wells are established by the Oil and Gas Conservation Commission after a “wildcat” well has discovered a productive formation or multiple formations. A “wildcat” well is defined as a well in which there are no other deep wells of the same target formation within 25,000' of the permitted location. Once a wildcat well has found a discovery and the Commission has ordered the unit size, then other deep wells within 25000' which target the same formation must be on approved units which are also established by the Commission. If an operator wishes to permit a well that is within 25,000' of wells on established spacing, and the proposed location is not on an approved unit, then the spacing shall be as follows:

- **Deep Gas Well drilled to a depth between 4,000' and 7,000' must be located in the center of a 281 acre square unit with sides of 3,500'.**
- **Deep Gas Well drilled to a depth greater than 7,000' must be located in the center of a 574 acre square unit with sides of 5,000'.**
- **Deep Oil Well drilled to a depth between 4,000' and 7,000' must be located in the center of a 70 acre square unit with sides of 1,750'.**
- **Deep Oil Well drilled to a depth greater than 7,000' must be located in the center of a 143 acre square unit with sides of 2,500'.**

The Division of Oil and Gas requires an operator to file a CASING AND CEMENTING PLAN when a deep well is permitted. This includes a schematic of the wellbore with type, weight, grade and approximate depths of casing strings and cement type, additives and quantity used on each casing string. A Blow-Out Preventer shall also be installed with the type and brand included on the casing plan (See section on BOP for more information).

Regulations-805 KAR 1:100 Section 1-13 and 805 KAR 1:130
Form-CASING AND CEMENTING PLAN (Form ED-7, See Appendix B)
Kentucky Carter Coordinate System used to establish North-South baseline of deep well units.

Variance From Well Spacing

Division of Oil and Gas

If a proposed well is closer to an existing well or property line than the minimum distances allowed, the operator may be granted a spacing variance if the permit application includes written consent from all owners of oil and gas interests affected by the proposed well. The Director may also grant a variance after a hearing is granted to justify the spacing conditions presented by the operator.

Statute-KRS 353.620

Pooling of Oil and Gas Interests

Division of Oil and Gas

If an oil and gas lease is located in such a position which prohibits drilling of a well due to size or other conditions, the Division may order a hearing to establish pooling of contiguous tracts. A pooling order establishes the authority for drilling and producing oil or gas wells in a manner in which all owners of oil and gas interests may elect to participate in drilling, production and share in revenues based on operating interests proportional to individual owners net oil and gas interest. A pooling order includes options available to non-voluntary interest owners for participation in the pooled unit. These options include:

- **Participation at full cost.**
- **Participation on a carried basis.**
- **Surrender for a determined value.**
- **Execute a lease to the well operator.**

Statute-KRS 353.630

Well Permit

Division of Oil and Gas

An APPLICATION FOR PERMIT shall be filed with the Division of Oil and Gas before a well is **drilled, deepened** or **re-opened** for production of natural gas, crude oil, water supply for enhanced recovery, or injection into a reservoir for the purpose of enhanced recovery. A permit is also required to drill stratigraphic test holes or operate any well under violation in which the previous well operator's bond has been forfeited. The permit application is to include a fee of $300 made payable to the "Kentucky State Treasurer," three copies of the well plat and if an individual bond is used, submit bond with application. Applicant should insure the following information on the application is as follows:

- **Well operator's name on application shall be identical to name listed on bond.**
- **Well operator shall provide permanent street address (P. O. Box numbers are not acceptable).**
- **Person signing application shall be officer, or partner, of the company and title of person shall be typed or clearly written.**
- **Information on permit application (such as well number, elevation, Carter Coordinates and lease name) shall correspond to information on well plat.**

All blanks shall be filled in completely or the application will be returned.

When the permit is issued, the well shall be spudded within one year of the date issued or the permit will expire. Wells drilled after a permit has expired are in violation. Samples may be requested on any well permit. If a permit has been stamped "Samples required," refer to the Drill Sample Section on Page 14.

Cancellation of permits before expiration requires the operator to contact the Lexington office by letter, requesting the permit be canceled. The inspector will inspect the location and notification shall be sent to the operator once the permit has been canceled. The operator should cancel a permit as soon as possible after the decision is made not to drill the well.

Statutes-KRS 353.570, 353.580 and 353.590
Form-APPLICATION FOR PERMIT (Form ED-1, See Appendix B)
Fee-$300
Time-Permit valid for 1 year from issue date.

Well Permit Underlain by Coal Seams

Division of Oil and Gas

If the proposed well is underlain by coal seams leased to, or currently being mined by an individual or company, the well operator shall identify the person or company in Section 12 on the permit application. The well operator shall send a copy of the permit application and well plat, by registered or certified mail, to the company or companies operating those seams. The Division of Oil and Gas shall hold the permit application for 15 days to allow the coal company to evaluate the well location's impact on future mining plans. If the coal company objects to the location, the Division will schedule a

hearing and notify the well operator and coal company. Based on information presented, the well location will be approved or moved to an alternate location as near to the original location as possible. The Division may waive the 15 day period if the coal company notifies the Division in writing. Information and mine maps are available at the Department of Mines and Minerals.

Statute-KRS 353.050

Well Permit in Gas Storage Area

Division of Oil and Gas

If a proposed well is located within a gas storage protection zone, the applicant shall identify the storage field operator in Section 13 of the permit application. Applicant shall submit a copy of the permit application and well plat to that operator when the permit application is mailed to the Division of Oil and Gas. The Division of Oil and Gas shall hold the application for five days to allow the storage field operator to evaluate the proposed well's impact on the storage reservoir. If the gas storage operator does not file an objection within that five day period, the permit will be issued. If an objection is filed, the Division shall conduct a hearing and establish the manner in which the well is to be drilled.

Any well penetrating a gas storage reservoir shall be drilled in such a manner to effectively "case off" the storage reservoir and prevent the intrusion of oil, gas or water into the reservoir and protect the reservoir from a blow-out or waste of gas during drilling, completion or plugging. Information on the location of storage fields can be obtained at the Division of Oil and Gas and the Kentucky Geological Survey.

Regulation-805 KAR 1:080

Well Permits on Severed Mineral Tracts

Division of Oil and Gas

Proposed wells on Severed Mineral Tracts requires the operator to submit a PLAN TO PREVENT EROSION OF AND SEDIMENTATION FROM A WELL SITE with the permit application. This plan shall include the following:

- **A brief description of the construction and excavation required in building the access road, well site and drilling pit.**
- **The proposed vegetation mixtures to be used for reclamation.**
- **An 8 1/2" by 14" diagram of the area to be disturbed drawn to a scale of 1"=400' containing the surface owner lease boundary, access road, well site, pit location, buildings, water wells, gas lines and storage facilities. The operator may use an enlarged area of a 7.5' USGS Topographic Quadrangle rather than constructing a separate drawing.**

The surface owner's notarized signature is required before the permit application is processed. If he refuses to sign, the well operator shall provide a copy of the certified mail receipt verifying Form ED-10 was received by the surface owner. The General Counsel of the Department of Mines and Minerals will issue a letter requesting participation in a mediation hearing. If the General Counsel receives a request from the surface owner to participate in the mediation, then an Order Scheduling Mediation is

issued notifying the surface owner and well operator. Both parties must pay a $100 mediation fee to participate in mediation. If the surface owner refuses mediation, the mediator will recommend the well operator's reclamation proposal and the permit will be processed.

If the surface owner cannot be located, the operator shall publish a notice of intended activity in a local newspaper over two publishing periods and once in a statewide newspaper.

Regulation-805 KAR 1:170 (New Regulation)
Statute-KRS 353.5901
Form-PLAN TO PREVENT EROSION OF AND SEDIMENTATION FROM A WELL SITE (Form ED-10, See Appendix B)
Fee-$100 Mediation Fee (If Required) Assessed to Surface Owner and Operator.

Stream Crossings, Wetlands, Wild Rivers, Discharges to Streams

Division of Water

The installation of pipelines, bridges and/or culverts in a stream introduces obstructions to that stream's flow. The placement of fill, construction of a pond or dam or any other activity that would introduce an obstruction to a stream or impact the floodplain, requires a floodplain permit or a letter stating an exemption has been granted. Before installation, the Kentucky Division of Water, Floodplain Management Section and the local Floodplain Coordinator should be contacted. Stream obstructions may be of a temporary nature and the season of use determines whether a permit is needed rather than a letter of exemption. The guidelines and a diagram for a typical low water crossing are listed in Appendix B.

Floodplain activities involving one acre or more of a wetland or along 200 linear feet of a blue line stream, as designated on a USGS Topographic Map, will require a permit from the U. S. Army Corps of Engineers and the Division of Water. The Division of Water recommends that the applicant hold a pre-application meeting with all concerned agencies and appropriate regional offices which are listed in Appendix A.

Some segments of the Waters of the Commonwealth and their adjoining land areas are designated by the General Assembly as wild river corridors. Wild river corridors are covered under management plans, developed to protect the special features of each river area. A CHANGE OF USE PERMIT or the approval of the Natural Resources and Environmental Protection Cabinet Secretary is required for any activity that has the potential to adversely affect a wild river corridor. The cabinet shall be notified in advance of that activity so that the activity's need for a Change of Use Permit can be determined.

In a wild river corridor, the following would need to be addressed for the activities of oil and/or gas exploration and production:

- **Road construction.**
- **Utility right-of-way.**
- **Area of disturbance shall not exceed 60 by 100'.**
- **Pits constructed to hold drilling fluids or brine are to be located beyond areas prone to flooding and constructed according to Holding Pit requirements.**

- **Written notification to the Division of Water shall be provided for the planned dates of drilling.**
- **No produced water shall be discharged into the surface or groundwaters within a Wild River Corridor.**
- **Dust control measures shall be taken to prevent dust particles from entering into surface water.**
- **Pipelines shall follow access roads and shall not be routed across a wild river.**
- **Produced water shall be in a closed tank and have a minimum 30 day storage capacity and fluids shall be removed before they reach two-thirds the tank's capacity.**

The Division of Water recommends that a pre-application meeting with all concerned individuals and agencies be scheduled, check Appendix A for the appropriate regional office. Wild river corridors and their dates of designations are listed in Appendix A and the Change of Use Permit Application form in Appendix B. USGS topographic maps are available showing the boundaries of the wild river corridors. Contact the Wild Rivers Program, Division of Water, Department for Environmental Protection, 14 Reilly Road, Frankfort, Kentucky 40601, or call (502) 564-3410 if you have any questions.

Regulations-401 KAR 4:060, 401 KAR 4:100 through 4:140, 401 KAR 5:029 Section 2, and 401 KAR 5:031
Statutes-KRS 146.250, 146.270, 146.280, 146.290, 146.350, 146.990, 151.125,151.140, 151.250, 224.10-100 and 224.70-110
Federal-Clean Water Act, Section(s) 401 and 404
Form-Permit to Construct Across or Along a Stream, Change of Use Permit (See Appendix B)

Twin Wells

Division of Oil and Gas

When an operator applies for a well permit which will be "twinned" near an existing well, the existing well's permit number and producing formation shall be identified in Section 20 of the permit application along with steps taken to ensure the proposed twin well does not produce from the same zone as the existing well. In addition, the following information shall be presented on the "twin well" plat:

- **The geologic zones to be produced in each well shall be identified on the well plat and the distances between them indicated.**
- **All wells shall be identified by permit number (if available) and well numbers.**

A completed well plat containing information on twin wells is included in Appendix B.

Statute-KRS 353.610 Section 2
Form-WELL PLAT

Directional or Horizontal Wells

Division of Oil and Gas

The well operator shall submit a permit application with a cover letter requesting a permit to drill a horizontal or directional well. In addition to information required on a conventional well plat, the plat shall also include:

- **The proposed target location with respective Carter Coordinates.**
- **The proposed drill path or course of the well with distance and bearing.**
- **Identification of the Intersection Length (Horizontal distance between point at which well penetrates top of target formation and end point within that formation).**
- **A dashed line shall be drawn around intersection length to avoid conflicts with spacing requirements.**

The well operator shall submit to the Division three copies of a cross-section of the proposed wellbore prepared by the contractor responsible for the directional control mechanism. The cross-section shall include:

- **The kick-off point or depth at which deviation is started.**
- **Known coal seams to be intersected.**
- **Proposed producing formation(s).**
- **Proposed target formation.**

A CASING AND CEMENTING PLAN shall be prepared detailing the casing size, type, weight/ft., grade and depth to be used along with cement class, weight, additives and quantity used on each casing string. A Blow-Out Preventer is to be used in the event high pressure is encountered during drilling; information on the brand and type of BOP is required on Form ED-7 (See section on BOP for more information). The operator shall also file an OPERATOR CERTIFICATION OF FORMATION OFFSET AND VERTICAL DEPTH which lists tops and bottoms of formations and coal seams penetrated with the lateral offset (in feet) from the well site and the true vertical depth of those zones. Any coal operator or owner adversely affected by directional drilling shall be supplied with copies of the pre-drill well plat and cross-section diagram before drilling and directional surveys and copies of wellbore cross-sections within ten days after drilling.

The well operator shall notify the oil and gas inspector at least 48 hours prior to spudding a directional well. When filing well records or providing the inspector with information, the operator should differentiate between true vertical depth and measured depth as measured depth will exceed true vertical depth due to curvature of the wellbore. Within ten days after the well has been drilled the operator shall provide the Division with copies of directional surveys, three copies of cross-sections of the wellbore with drill path of the borehole, coal seams, target formation(s) and kick-off point.

Regulation-805 KAR 1:140
Statute-KRS 353.550
Form-WELL PLAT
CROSS-SECTION OF WELLBORE (Prepared by Directional Survey Contractor).
CASING and CEMENTING PLAN (Form ED-7, See Appendix B)
OPERATOR CERTIFICATION OF FORMATION OFFSET and VERTICAL DEPTH (Form ED-8, See Appendix B)

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II. DRILLING

Spudding-Drilling

Division of Oil and Gas

Before drilling operations begin, the operator shall notify the oil and gas inspector (identified on the permit) at least one day prior to spudding. A copy of the permit shall be kept at the well site during drilling operations. Casing requirements for the protection of fresh water zones and mineable coal seams are detailed later in this manual. When drilling is completed, the operator shall supply the inspector with the total depth, size and amount of casing strings with cement quantities, and completion status of the well.

The operator shall file a WELL LOG AND COMPLETION REPORT within 90 days after total depth is reached. If the well is to be plugged immediately after drilling, the operator shall obtain plugging instructions from the inspector (refer to section on Plugging of Wells in the ABANDONMENT and CLOSURE chapter of this manual).

Statute-KRS 353.660
Form-WELL LOG AND COMPLETION REPORT (Form ED-3, See Appendix B)

Blow-Out Preventer Requirements

Division of Oil and Gas

If a deep or directional well is being drilled, a blow-out preventer (BOP) with a working pressure of 1,500 psi and test pressure of 3,000 psi, may be required to prevent the uncontrolled flow of high-pressure gas or formation fluids from the wellbore to the surface or into lower-pressured subsurface zones. The BOP must be designed to:

- **Close the well at the surface.**
- **Control the release of formation fluids.**
- **Permit pumping into the wellbore.**
- **Allow movement of the drill pipe**.

On “deep” wells, the BOP shall be installed prior to the depth required for the well to be classified as a deep well, preferably after surface or intermediate casing is cemented. The BOP should be tested before the casing shoe is drilled out and test results kept at the well site for review by the inspector. Information on the type, brand, working and test pressures are to be included on Form ED-7, which is required for deep and directional wells. The Director may waive the use of a BOP if the operator presents geologic and reservoir data from adjacent wells of the target formation showing pressure measurements do not require the use of a BOP.

Regulations-805 KAR 1:130 Section 3 and 1:140
Statutes-KRS 353.520 and 353.550
Form-CASING AND CEMENTING PLAN (Form ED-7, See Appendix B)

Emergency Situations

Division of Oil and Gas

The inspector, and inspector supervisor are to be notified immediately in the event of an accident or situation occurring at a wellsite which may endanger the environment, public and/or employee safety or natural resources of the Commonwealth (see Appendix A for Inspector Directory). This includes blow-outs, release of H_2S, NORM exposure, well fires, oil spills and gas leaks. Under direction from the inspector and other regulatory agencies, the well operator must take corrective measures to insure minimal health and environmental damage.

Well operators are encouraged to use "best management practices" when producing oil and gas to reduce danger and perform periodic risk assessment to evaluate safety practices.

Statute-KRS 353.500

Drilling Pits

Division of Water

Drilling pits shall be constructed to have the capability and the capacity to contain drilling fluids so that contamination of the waters of the Commonwealth do not occur. Spills or releases having the potential of degrading the environment or impacting human health and safety must be reported to the Environmental Response Team at (502) 564-2380 or 1-800-928-2380. For drilling and workover activities, the following need to be addressed:

- **A pit must be constructed which will contain all the cuttings and fluids anticipated for the area and depth to be drilled. Adequate freeboard (distance of fluid level in pit to upper rim) should be maintained and checked regularly during drilling. If necessary, a secondary pit should be constructed in such a manner as to contain or prevent overflow.**
- **Containment structures should be placed to contain all spilled fuel, crude oil and drilling fluids.**
- **Consideration given to the type of material used in the construction of the pit to prevent groundwater contamination and leakage.**

Within thirty (30) days following completion of drilling activities, the pits shall be closed. Waste shall be removed from the pit and disposed of in accordance with Kentucky laws and regulations. All visible contamination must be removed from the pit during closure. The appropriate waste disposal method is dependent upon the waste's components (make-up). The pit area shall be backfilled, graded and revegetated. The vegetative cover shall be capable of preventing soil erosion.

Pits in place longer than thirty (30) days shall be considered as "Holding Pits" and shall meet their requirements (See Holding Pits). However, the Director of the Division of Water may, with good cause, extend the pit's life up to a maximum of ninety (90) days. A written request seeking that extension should be submitted before the day of completion.

Regulation-401 KAR 5:090 Section 10
Statutes-KRS 151.125, 224.10-100 and 224.70-110

Storage of Drilling Fluids

Division of Waste Management

Oil production brine pits and drilling mud pits that are regulated by the Division of Water are also regulated by the Division of Waste Management as permit-by-rule sites. For permit-by-rule sites, the operator does not need to submit any paperwork to the Division, but the operator must avoid any activity that would cause environmental problems, such as surface water or groundwater pollution. If permit-by-rule sites do cause environmental problems, the operator is subject to fines and possible imprisonment, in accordance with applicable statutes.

Regulations-401 KAR Chapter 30, 401 KAR 31:030 and 45:060
Statute-KRS 224.50-760

Handling and Disposal of Trash

Division of Waste Management

Trash, including any discarded paper, soft drink cans, trees, brush, and other waste material, must be hauled off-site for recycling or disposal in an approved landfill. These materials must not be placed in the pit or otherwise disposed of on-site, unless a permit is obtained from the Division of Waste Management. To locate recyclers and the landfills nearest you, contact the appropriate Division of Waste Management field office (See Appendix A). A list of approved landfills is in Appendix A. Some specific waste provisions are as follows:

- **BURNING- Except for land clearing debris (trees and brush), waste must not be burned. When burning land and clearing debris, the operator must comply with requirements of the Division for Air Quality (502-573-3382) and with any local ordinances (contact your local courthouse to determine whether there are any local ordinances on burning).**
- **ROAD OILING- Road oiling must not occur. Used oil must be burned in a space heater in accordance with hazardous waste regulations, or it must be taken to a collection center to be recycled or burned for energy recovery. To locate a collection center in your area, contact the Kentucky Division of Energy (1-800-282-0868). Refer to "Disposal of Tank Bottom Sediments" on page 18.**
- **TIRES- Waste tires may be temporarily stored on-site, if they are covered with a tarp or are otherwise managed to prevent the entrapment of water. If you accumulate more than 100 waste tires, which would be rare at an oil and gas operation, you must register with the Division of Waste Management and comply with the waste tire control program. As with other solid waste, tires must not be burned, and they must be taken to a permitted landfill or recycler.**
- **LEAD ACID BATTERIES- Used lead acid batteries must be taken to a wholesaler or retailer of new batteries, a battery recycling facility, a secondary lead smelter, or a collection center that delivers to a recycler or smelter. Broken batteries are considered hazardous wastes and spill residue must be restored and contained.**
- **SINKHOLES- Waste must never be put in or next to a sinkhole.**
- **STREAMS- Waste must not be placed in or next to a stream.**

Regulations-401 KAR 30:031 and 401 KAR 31:010
Statutes-KRS 224.40-100, 224.40-305, 224.50-410, 224.50-413, 224.50-826, and 224.50-832

Protection of Fresh Water Zones

Division of Oil and Gas

The well operator is required to circulate cement to surface in the annular space between casing and wellbore to protect fresh water zones from contamination with crude oil, natural gas and brine fluids. When the well is being drilled, surface or intermediate casing strings, whichever are set through the fresh water zone, shall extend at least 30 feet below the deepest known fresh water and cemented to surface. If the well is to be plugged, recoverable casing shall be cemented to the surface or pulled. The approximate deepest fresh water zone is identified on the permit. Any questions should be directed to the inspector.

Regulation-805 KAR 1:020
Statute-KRS 353.520

Drilling Through Coal Seams

Division of Oil and Gas

Wells penetrating mineable coal seams shall be drilled in such a manner as to protect the seam from oil and natural gas pressure, or water being produced from deeper zones. Surface or intermediate casing strings shall extend at least 30' below the deepest mineable coal with cement circulated to surface. Areas where multiple coal seams are present shall be “cased-off” in a similar manner. Casing set to protect coal seams shall remain in place for the life of the well. If a well penetrates a seam which has been “mined-out,” a liner may be set or cement baskets on a casing string may be installed. If a liner is installed, it shall be set 20' below the coal seam and extend to at least 20' above the seam. Casing shall then be installed through the liner and the annular space between the casing and liner cemented. The preferred method would be to install a cement basket at the top of the seam.

Statutes-KRS 353.080 and 353.100

Drill Samples-Generation and Storage

Division of Oil and Gas

The Kentucky Geological Survey’s Well Sample Library maintains catalogues of drill cuttings of wells strategically located throughout Kentucky. If the samples are requested by the Survey, the well permit will be stamped accordingly. The operator shall deposit the samples at the nearest collection facility provided by the Survey. See Appendix A for a listing of collection facilities.

Statute-KRS 353.660

Drilling Deeper than Permitted Depth

Division of Oil and Gas

If an operator drills a well deeper than the permitted depth listed on the permit, the following steps are required:

- **The operator shall notify the inspector or inspector supervisor the next working day.**
- **The operator shall amend the permit to the current depth of the well within ten days.**
- **The operator shall submit additional bonding to reflect the depth within ten days (only for individual well bonds).**
- **The depth shall not cause the well to be in violation of spacing requirements discussed earlier in this manual.**

Regulation-805 KAR 1:120
Statute-KRS 353.590 Section 6

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III. COMPLETION-OPERATION

Well Completion-Filing of Well Records

Division of Oil and Gas

Within 90 days after a well has reached total depth, the well shall be completed as a producing well or dry hole and the operator shall file a WELL LOG AND COMPLETION REPORT with the Division of Oil and Gas. The completion form shall be completed in its entirety or it will be returned to the operator.

Copies of electrical or geophysical logs (if run) shall be submitted with the completion report. If the well is plugged, a PLUGGING AFFIDAVIT shall be submitted identifying the depths and quantity of cement plugs, types and depths of other plugs (brush, bridge, etc.), casing pulled and casing left in the well.

All well records are forwarded to the Kentucky Geological Survey and kept on file for public access. At the request of the well operator, the Division of Oil and Gas may hold all information confidential for one year from the date received from the operator.

Statute-KRS 353.660
Form-WELL LOG AND COMPLETION REPORT (Form ED-3, See Appendix B)
PLUGGING AFFIDAVIT (Form ED-38, See Appendix B)

Disposal of Completion Fluids

Division of Waste Management

Completion fluids fall under the definition of solid non-hazardous waste. Temporary storage of these fluids is regulated as a solid waste permit-by-rule. Permit-by-rule sites do not need to submit any paperwork to the Division, but do need to comply with the environmental performance standards. Disposal of such waste is not covered by a permit-by-rule, and the applicable regulations depend on the disposal method to be employed. In order to dispose of the waste at the site by applying it to the land, a permit shall be obtained. The waste can be hauled off-site and disposed of in a permitted solid waste landfill, as long as it is allowed under the permit for that landfill.

Regulations-401 KAR Chapter 30, 401 KAR 31:030, 401 KAR 47:030 and 401 KAR 47:150

Registration of an Oil and Gas Facility

Division of Water

Within 60 days after the facility begins producing oil and/or gas, the facility shall be registered with the Division of Water. A tank battery and its associated wells, pits and other associated structures constitute one facility. Facilities not associated with a tank battery shall be registered individually.

Dry gas wells are exempt from the registration requirements, provided they are permitted with the Kentucky Division of Oil and Gas. Operators of dry gas wells having produced water are required to dispose of it by utilizing an approved method (See Produced Water Disposal).

Notification of the assigned registration number is sent to the owner/operator by certified mail. The operator is required to post a waterproof sign at each facility. The sign shall be of a size and type approved by the Director and identify the operator's name, address, phone number and the facility's registration number. The phone number listed shall be a number that can access a company representative throughout any part of a 24 hour period.

The registration number is active for the life of the oil and gas facility. It is terminated when the facility and associated structures are removed and the site reclaimed to prevent soil erosion.

Regulation-401 KAR 5:090 Section 4
Statutes-KRS 151.125, 224.10-100 and 224.70-110
Form-OIL AND GAS FACILITY REGISTRATION FORM (See Appendix B)

Storage and Piping System Compliance

State Fire Marshal's Office
Hazardous Materials Section

The storage and handling of all flammable and combustible liquid at gas or oil wells and related production facilities shall comply with the requirements of NFPA 30 and the Kentucky Fire Prevention Code.

Regulation-815 KAR 10:050
Code-NFPA 30 and the Kentucky Fire Prevention Code
Form-PERMIT FOR CONSTRUCTION OF ABOVE GROUND STORAGE TANKS FOR PETROLEUM OR HAZARDOUS SUBSTANCE (See Appendix B)
Fee-$50.00

"DANGER" Signs Posted on Storage Facilities

Division of Oil and Gas

The Division of Oil and Gas requires well operators to post **DANGER** signs in a prominent location on all storage facilities and tank batteries that are active or abandoned. The sign shall be approved by the Division. An approved sign may be obtained from the Kentucky Oil and Gas Association or the operator may make a similar approved sign (See Appendix A).

Regulation-805 KAR 1:160 (New Regulation)

Spill Prevention Control and Countermeasure (SPCC) Plan

Division of Water

Spill Prevention Control and Countermeasure (SPCC) Plans are required for any single above ground container with a capacity of more than 660 gallons and for two or more above ground tanks which exceed 1,320 gallons collectively. SPCC Plans require the following:

- **A bermed area around the tank(s) having the capacity to contain the fluid volume of the largest tank.**
- **A list of containment or diversionary structures (dikes, impervious liner, berms, etc.) for each tank and/or tank battery.**
- **For each tank, prediction of quantity of oil that would be spilled and direction of flow should the tank rupture or overflow.**
- **An oil spill contingency plan stating steps of action in handling an oil spill; such as, using oil booms, sorbent material and who would be notified.**
- **List of manpower, equipment and materials available to carry out the plan.**
- **Familiarize operating personnel with the plan.**

The dike or berm around the tank battery shall provide a containment area sufficient enough to hold the volume of the largest tank within the tank battery. The dike or berm shall be constructed to prevent contact of storm water runoff from the outlying area with the area it encloses. Spills, leaks or bypasses contained within the spill prevention, control and countermeasure (SPCC) of a facility need to be reported and cleaned up. These events have the potential to impact groundwater and storm water. Storm water and other fluids shall not be allowed to accumulate within the containment area; in doing so, the SPCC Plan is not sufficient. The Plan does not need to be submitted to the Division of Water for approval but, may be required for certain facilities on a case-by-case basis. The SPCC Plan shall be reviewed and certified by a Registered Professional Engineer.

Regulation-401 KAR 5:090, Section 13
Statutes-KRS 151.125, 224.10-100 and 224.70-110
Code of Federal Regulations-40 CFR Part 110 and Part 112

Underground Storage Tanks

Division of Waste Management

Regulated underground storage tanks (USTs) shall be registered with the Underground Storage Tank Branch. This includes tanks larger than 110 gallons that have ten percent or more of the tank volume including piping beneath the surface of the ground. Specific requirements for leak detection, release reporting, closure, corrective action and financial responsibility for regulated USTs are found in 401 KAR Chapter 42.

For oil and gas facilities, liquid traps or associated gathering lines directly related to oil or gas production and gathering operations are exempt from the UST regulations. Any underground or above ground storage tanks that are exempt from the UST regulations do not have to be registered or be subject to annual fees. Exempt tanks do not have to be closed unless there is a release from the tank.

(See Section III, subsection on Cleanup of Oil, Protected Fluids and Chemical Spills). The Superfund Branch handles closure of exempt tanks and petroleum releases. Forms to register USTs may be obtained from the UST Branch of the Division of Waste Management at (502) 564-6716.

Regulations-401 KAR Chapters 30 to 42
Statute-KRS 224.60-100 to 224.60-160
Forms-DEP-5024 (Registration of tank), other forms necessary for closure
Time-Notification shall be submitted within thirty (30) days of bringing tanks into use.
Fee-$30/year

Disposal of Tank Bottom Sediments (BS)

Division of Waste Management

Tank bottoms are exempt from hazardous waste requirements, provided the bottom is a direct result of drilling fluids, produced water, and other waste associated with the exploration development, or production of crude oil, natural gas, or geothermal energy.

Tank bottoms shall not be removed from the tank and burned, and they shall not be dumped or spread on the ground without a permit from the Division of Waste Management. Tank bottoms shall not be taken to a landfill unless there are no free liquids and the waste meets requirements established by the landfill. Tank bottoms should be recycled as waste oil at an approved recycler or crude oil processor (See Appendix A for a list of approved landfills).

Regulations-401 KAR Chapter 30, 401 KAR 31:030, 47:030 and 401 47:150

Transfer of Ownership/Operatorship of Oil and Gas Facility

Division of Water

The operator of the facility shall file an updated registration form when the following occurs:

- **Change in ownership/operatorship**
- **Change in the quantity of produced water**
- **Change in the treatment, storing, or disposing of produced water**

When a facility has a change of ownership/operatorship, a TRANSFER OF OWNERSHIP Form is to be submitted to the Division of Water. It is to be accompanied with an updated registration form completed by the new operator. The new operator must post a sign with his name, address, 24 hour phone number and facility's registration number.

Transfer of an oil and gas facility with the Division of Water does not relieve the operator from transferring the well associated with the facility with the Division of Oil and Gas.

Regulation-401 KAR 5:090 Section 4
Statutes-KRS 151.125, 224.10-100 and 224.70-110
Form-TRANSFER OF OWNERSHIP (See Appendix B)

Transfer of Well Ownership

Division of Oil and Gas

When a well is acquired by an operator, the well or wells shall be transferred to the successor and bonded. The original well operator is responsible for filing a WELL TRANSFER identifying the well name and number, permit number, Carter coordinates and successor operator. A fee of $25 payable to the "Kentucky State Treasurer" is assessed for each well transferred. The operator acquiring the well shall bond the well as described earlier in this manual.

Transfer of a well with the Division of Oil and Gas does not relieve the operator from transferring the oil and gas facility associated with that well with the Division of Water.

Statute-KRS 353.590
Form-WELL TRANSFER (Form ED-13, See Appendix B)
Fee-$25 per well.

Holding Pits

Division of Water

When a pit is to be used for receiving and storing produced water, then a permit is required. The permit shall be obtained before construction begins. The application shall be submitted no less than 30 days before the desired date of starting construction.

Holding pits are used for storing produced water. Holding pits are required to have:

- **An impermeable synthetic liner with a minimum thickness of 20 ml to prevent the contamination of groundwater.**
- **A two foot continuous berm to divert surface drainage and prevent any discharge from the pit.**
- **A freeboard level of one foot to assure that no discharge will occur.**

No discharge from a holding pit is allowed, unless it has coverage under a Kentucky Pollutant Discharge Elimination System (KPDES) Permit.

A holding pit permit is valid for as long as the pit is used for the purpose it was intended. When a holding pit is no longer used for its intended purpose, it shall be backfilled, graded and revegetated. Upon written approval of the director, a holding pit may remain as a permanent structure or be used for other purposes.

Statute- KRS 151.125, 224.10-100 and 224.70-110
Regulation-401 KAR 5:090, Section 9
Form-APPLICATION FOR CONSTRUCTION AND OPERATION OF A PRODUCED WATER HOLDING PIT (See Appendix B)
Fee-$100

Improperly Abandoned Wells - Temporary Abandonment Permits

Division of Oil and Gas

After a well is completed as a productive well, production shall be established within a reasonable time taking into account market conditions, pipeline access, weather, etc. If a well is not producing it shall be considered Improperly Abandoned. A non-productive well can be classified as Temporarily Abandoned (TA) after the inspector has evaluated the casing integrity, wellhead and conditions warranting the non-productive status. The operator shall complete a TEMPORARY ABANDONMENT PERMIT and submit to the Division of Oil and Gas with a copy of the WELL LOG AND COMPLETION REPORT which will be forwarded to the inspector for his evaluation. T.A. permits can be issued for up to a period of two years and can be renewed if the inspector thinks it is justified, but will require the operator to re-file the T.A. permit. Gas wells subjected to periodic shut-in periods due to market conditions are not considered Improperly Abandoned.

Statute-KRS 353.550
Form-TEMPORARY ABANDONMENT PERMIT (Form ED-12, See Appendix B).
Time-T.A. may be issued for up to 2 years.

Underground Injection (Class II) Wells

U. S. Environmental Protection Agency (EPA)
and
Kentucky Division of Oil and Gas

The U.S. E.P.A., Region Four (IV), Groundwater/Underground Injection Control (UIC) Section in Atlanta, Georgia, regulates wells in which fluid is injected under pressure (Class II Wells) in Kentucky. A permit from the E.P.A. is required for Class II wells. Injection of fluids shall be done through a tubing and packer arrangement with the packer set immediately above the injection zone. A Mechanical Integrity Test (MIT) is required on the annulus between the tubing and production casing. The MIT requires pressure of at least 300 lbs. applied on the annular space and monitored by pressure sensitive devices for at least 30 minutes. A pressure variance not to exceed 9 lbs. above or below 300 lbs. is acceptable during the 30 minute test period. For questions relating to UIC wells and to obtain regulations and forms, operators should contact the EPA at (404-347-3379).

Well operators shall file a CERTIFICATE OF COMPLETION FOR AN INJECTION WELL with the Division of Oil and Gas which contains information on the casing, tubing, type and depth of packer, injection pressure and reservoir information. This information is required to insure the protection of fresh water zones.

Regulation-805 KAR 1:020
Form-CERTIFICATE OF COMPLETION FOR AN INJECTION WEL (Form ED-23, See Appendix B)
Federal Agency-U.S. E.P.A
Regulations-40 CFR 124, 144, 146, and 147.
Form-U.I.C. PERMIT (EPA Form 7520-6, Contact USEPA, Region IV office)

Produced Water Disposal

Division of Water

Owner/operators of a facility having produced water are required to identify their method of disposal on the registration application form. The disposal of produced water shall be accomplished in a manner that will not contaminate the waters of the Commonwealth. The following are approved methods for disposing of produced water:

- **Injection into an approved, permitted or rule-authorized Class II underground injection well.**
- **Surface discharge covered under a Kentucky Pollutant Discharge Elimination System (KPDES) Permit.**
- **Transporting produced water off-site to a UIC Well.**
- **Using enhanced evaporation to evaporate produced water.**

In using the transport off-site method, the approval of the Division of Water's Director is required before doing so. There is no fee for receiving this approval. Operators seeking to use this method are to submit the APPLICATION TO DISPOSE OF PRODUCED WATER OFF-FACILITY form. This approval remains in effect, as long as the operator who received it continues to operate the facility in the manner they have filed with the Division of Water (DOW) or otherwise conditioned by the DOW.

If the produced water is considered to be hazardous material: For example, it could contain natural occurring radioactive material (N.O.R.M.). Then the carrier and their vehicle would need to be recognized by the Division of Motor Vehicle Enforcement, Department of Vehicle Regulation, Transportation Cabinet.

In using the surface discharge method, a KPDES permit is required for any discharge associated with the facility's operation. The owner/operator of the facility is required to have the KPDES permit in their name. This permit has a fee of $2,100 and covers designated points of discharge for 5 years. The operator is required to take samples of the discharges, have a laboratory analyze the samples and submit discharge monitoring report forms to show compliance with the permit's limitations. A KPDES permit shall be obtained before any discharge from the facility's operation can occur. The forms needed to apply for this permit are KPDES Form 1 and Form C. These forms have several pages and were not included in this document, however, they may be obtained from the KPDES branch of the Division of Water at (502) 564-2225, Ext. 593.

A typical KPDES permit covering discharges of produced water would have the following effluent limitations:

Effluent Characteristic	Monthly Avg.*	Daily Max.*
Total Suspended Solids (TSS)	30 mg/1	60 mg/1
Oil and Grease	10 mg/1	15 mg/1
Chlorides	600 mg/1	1200 mg/1

***mg/1**=milligrams per liter

pH shall not be less than 6.0 standard units nor greater than 9.0 standard units.

The enhanced evaporation method involves heating the produced water to the point of evaporation. Facilities with small amounts of produced water may consider this option. With this method, there are no discharges from the facility and the produced water is evaporated on site. No permits or fees are required.

Regulation-401 KAR 5:090 Sections 5,6,8 and 11
Statutes-KRS 151.125, 224.10-100 and 224.70-110
Federal Regulation-49 CFR 100 thru 177
Fee-Dependent Upon Method of Disposal Chosen.
Form-Dependent Upon Method of Disposal APPLICATION TO DISPOSE OF PRODUCED WATER OFF-FACILITY, (See Appendix B)

Use of Vacuum for Enhanced Recovery

Division of Oil and Gas

The use of vacuum units for increasing production from low pressure depleted reservoirs require the operator to notify, by registered mail all well operators within 1,000 feet of the well in which the vacuum unit is to be installed. The operator shall file an APPLICATION FOR PERMIT FOR USE OF VACUUM with the Division for each lease.

Regulation-805 KAR 1:040
Statute-KRS 353.560
Form-APPLICATION FOR PERMIT USE OF VACUUM (Form ED-9, See Appendix B)

Hazardous Waste Generation Storage and Disposal

Division of Waste Management

Any well operator who generates waste is required to determine if the waste is hazardous. Waste from oil and gas production may be classified due to ignitability, corrosivity or toxicity for metals or organics. Hazardous waste generated by well operators may include but are not limited to:

- **Used antifreeze.**
- **Unused fracturing fluids or acids.**
- **Gas plant cooling tower cleaning waste (e.g. spent glycol).**
- **Painting waste.**
- **Liquid and solid waste generated by crude oil and tank bottom reclaimers.**
- **Used equipment lubricating oils.**
- **Waste compressor oil, filters and blowdown.**
- **Used hydraulic fluids.**
- **Waste solvents (e.g. used to clean equipment and equipment parts).**
- **Waste in transportation pipeline-related pits.**
- **Caustic or acid cleaners.**
- **Radioactive tracer wastes.**

- **Vacuum or compressor discharge lines.**

Operators of oil and gas wells are generally considered "conditionally exempt small quantity waste generators" because the amount of hazardous waste generated is less than 220 lbs. per month (approximately half of a 55 gallon drum). This level of waste generators are not required to register with the Division of Waste Management but shall determine if waste is hazardous and shall store the waste in tanks or containers. Storage of hazardous waste at a well site may not exceed 220 lbs. to maintain status at this level. This level of waste generators may dispose of hazardous waste at a permitted recycling facility or a solid waste landfill approved to accept this waste. If an operator mixes hazardous waste with non-hazardous drilling waste, the mixture is considered as hazardous and the operator shall determine if the mixture will exceed the 220 lbs. for this level of waste generators.

Waste quantities ranging from 220 to 2,200 lbs. per month would classify the operator as a "small quantity generator" and operators exceeding 2,200 lbs. per month are considered "large quantity generators." Small and large quantity generators must register with the Division of Waste Management and must comply with additional storage, transportation, disposal and reporting requirements that do not apply to limited quantity generators. To obtain forms to register as a generator, contact the Hazardous Waste Branch of the Division of Waste Management at (502) 564-6716.

To avoid being classified as a small or large quantity waste generator, the well operator should:

- **Substitute whenever possible less toxic materials and initiate best management practice in the site operations.**
- **Ensure the waste generated does not exceed 220 lbs. for any calendar month.**
- **Keep hazardous and non-hazardous material separate.**

Regulations-401 KAR Chapter 30, 401 KAR Chapter 31 and 401 KAR 32:010
Statute-KRS 224.46-510
Forms-DEP-7037 (For Hazardous Waste-Exceeding 220 lbs./month)
Fee-$300 (For Hazardous Waste-Exceeding 220 lbs./month)

Groundwater Protection Plan

Division of Water

Activities with the potential to pollute groundwater are required to have a groundwater protection plan (GPP). Operators have the responsibility to identify those activities which pose a potential threat to groundwater and take steps to prevent the pollution of groundwater from those activities. A groundwater protection plan shall be prepared and implemented at each facility. The groundwater protection plan shall be submitted to the Division of Water, Groundwater Branch for review. If you have questions regarding this matter, contact the Groundwater Branch at (502) 564-3410.

Regulation: 401 KAR 5:037
Statutes: KRS 224.01-010, 224.10-100, 224.70-100 and 224.70-110

Reporting Spills, Bypasses and Leaks of Oil, Produced Fluids and Chemicals

Division of Waste Management
Division of Water

When a spill, leak or bypass occurs from a pipeline, drilling pit or container used for transporting or storing any substance that would result in soil contamination and/or contribute to the pollution of the Waters of the Commonwealth; the persons in charge of the activity shall immediately notify the Division of Water. The situation shall be reported immediately to the Environmental Response Team at (502) 564-2380 or 1-800-928-2380. The following information will be asked:

- **The responsible party.**
- **Location and point of discharge.**
- **The nature of the material discharged.**
- **Estimate the quantity of the material discharged.**
- **Estimate of probable environmental impact.**

The waters of the Commonwealth means and includes all rivers, streams, creeks, lakes, ponds, impounding reservoirs, springs, wells, marshes and all other bodies of surface or underground water, natural or artificial, situated wholly or partly within or bordering upon the Commonwealth.

For any spill or release of oil that occurs on the soil, the well operator shall report any release or spill of crude oil when the amount exceeds 25 gallons during a 24-hour period. Such releases of petroleum based products should be reported immediately to the Environmental Response Team at the number previously listed.

Even if the release is contained on soil; cleanup is required. When a release of oil, produced fluids, or chemicals occurs into the environment; groundwater can be contaminated and the ground can become unsafe for children and wildlife. The responsible party must determine the full extent of the release's effect upon the environment, take steps to correct that effect and prevent any additional effect. Any release or spill which causes or has the potential of causing a sheen on the Waters of the Commonwealth is in violation of the Clean Water Act, Section 311. Spills, leaks or bypasses contained within the spill prevention, control and countermeasure (SPCC) of a facility need to be reported and cleaned up. These events have the potential to impact groundwater and storm water runoff. Spills, releases or bypasses left in the SPCC can permeate (penetrate) into the soil contaminate groundwater and storm water. Requirements of SPCC Plans are discussed on page 15. All spills, bypasses and/or releases shall be remediated.

Regulations-401 KAR 5:090 Section 13 and 401 KAR 5:015
Statutes-KRS 151.125, 224.10-100 and 224.70-110, 224.01-400(11), 224.01-400 (18 to 21) and 224.01-405

Cleanup of Oil, Produced Fluids and Chemical Spills

Division of Waste Management
Division of Water

Any petroleum or chemicals spilled or otherwise released onto soils or into waters must be immediately cleaned up. Steps in this process include:

- **Determine the extent of the release and its effect on the environment.**
- **Correct the effect of the release on the environment.**

Characterization will generally include a thorough sampling of soils, surface water and groundwater. Information gathered in these steps are then used to select one of the following options available for corrective action:

- **Demonstrate that no action is necessary to protect human health, safety, and the environment.**
- **Manage the release in a manner that controls and minimizes the harmful effects of the release and protects human health, safety, and the environment.**
- **Restore the environment through the removal of the hazardous substance.**
- **Any of the above combinations.**

This can be accomplished in accordance with the following options: digging up contaminated soils and hauling such soils to an approved landfill, treating contaminated soils in a manner approved by the Division of Waste Management, closing the site in accordance with risk-based procedures, closing the site as a residual landfill, or by implementing other options permissive under the appropriate statute. If the release exceeds a reportable quantity (see previous section), the cleanup must be conducted under the supervision of the Division of Water or the Division of Waste Management. If the release is below a reportable quantity, the contamination must still be removed or otherwise cleaned up, but these activities usually will not need to be supervised by either division. Failure to clean up a release, even if the release was less than a reportable quantity, can subject the operator to fines and possible imprisonment. Contact the appropriate Division of Water or Division of Waste Management field office for additional information on cleanups.

Statutes-KRS 224.01-400 and 224.01-405

N.O.R.M.

Cabinet for Human Resources-Radiation Branch

Naturally Occurring Radioactive Material (N.O.R.M.) is formed when reservoir production fluids (oil and water) combine with secondary recovery fluid, downhole temperature and pressure to dissolve radioactive radium or radon within the producing formation. The radioactive material attaches to production equipment (tubing, casing, inside separators and storage tanks) in the form of scale. It is suggested that at the time of plugging a well, the equipment be scanned for N.O.R.M with an appropriate scanning device. For more information regarding scanning, monitoring or disposal, contact the Radiation Branch at (502) 564-3700.

Filing of Annual Oil and Gas Production

Division of Oil and Gas

Oil and natural gas annual production information shall be supplied to the Division of Oil and Gas on or before April 15th for the previous year's production. For gas or combination oil and gas wells, the following well information is required: Permit Number, Purchaser Number (Assigned by Purchasing Company), Lease Name, Producing Formation - If more than one, list as "Commingled" and list all producing zones, Produced Gas - Gas measured at wellhead or pro-rated based on pick-ups or open flow tests, Net Gas Sales - Actual gas sold, may be different from Produced Gas due to line loss or compressor usage) and Gas Well Status (Producing or Shut-In). Crude oil production can be reported by individual well or lease basis. When reporting oil production by lease the purchaser lease number used by the oil purchaser shall be included. A listing of permit numbers for wells on each lease shall be attached to the form making reference to the purchaser lease number.

Regulation 805 KAR 1:180 (New Regulation)
Statute-KRS 353.205 and 355.550
Form-ANNUAL REPORT OF MONTHLY PRODUCTION (Form ED-17, See Appendix B)

Underground Mining Activity Near a Well

Department of Mines and Minerals

Underground mining activity within 500 feet of a producing or plugged well requires the mining company to identify the well location, permit number and operator on an APPLICATION TO MINE WITHIN 500 FEET OF AN OIL OR GAS WELL and submit to the Department of Mines and Minerals. The mining company also sends a copy of Form OG-500 to the well operator. Upon receipt, the well operator may file an objection with the Department of Mines and Minerals within 15 days if, in the well operator's opinion, mining activity will adversely affect wellbore integrity.

Statute-KRS 352.510
Form-APPLICATION TO MINE WITHIN 500 FEET OF AN OIL OR GAS WELL (Form OG-500, See Appendix B)

Farm Tap Service

Public Service Commission

The operator of a gas pipeline company is required to provide service (farm tap) to a person who owns property on which the company's gas well or gas gathering pipeline is located, or to a person whose property and point of desired service is located within one-half (1/2) air mile of the gas pipeline company's gas well or gas gathering pipeline. The company is responsible for providing the meter and service tap, including saddle and first shutoff valve. The prospective customer (applicant) must provide all other equipment and material required for service.

In Appendix A the type of information the company must provide the applicant, specifies the installation methods and materials required. Prior to the company initiating service, the Public Service Commission shall cause the tap and applicant's service line to be inspected. If the company charges a rate for gas service, it shall have a tariff on file with the Public Service Commission.

In providing farm tap service, the P.S.C. does not require the gas producer or gas pipeline company to maintain a fixed or specific gas pressure; nor is the gas pipeline company restricted from abandoning any gas well or gas gathering pipeline.

Regulation-807 KAR 5:026
Statute-KRS 278.485

Gas Production or Gas Gathering Pipelines

Public Service Commission

The Public Service Commission does not assert jurisdiction over gas production or gas gathering pipelines. However, if a gathering pipeline is located in a Class 3 location (area with 46 or more buildings or area where building is within 100 yards of pipeline - See Glossary for more complete definition), it is subjected to the Public Service Commission's safety regulations. A gathering pipeline is defined as a pipeline that transports gas from a current production facility to a transmission line or main.

Regulations-807 KAR 5:022 Sec. 1(3) and Sec. 1(1)(f)
Statute-KRS 278.010(3) (b) and (c)

Quality of Gas

Public Service Commission

The Public Service Commission requires that all gas supplied to customers contain no more than:

- **A trace of hydrogen sulfide**
- **Thirty grams of total sulphur per 100 cubic feet; or**
- **Five grams of ammonia per 100 cubic feet.**

Each utility must also establish and maintain a standard heating value (BTU content) for its gas, which shall be included in the utilities tariff on file with the Public Service Commission. Utilities should consult Regulation 807 KAR 5:022, Section 15 and 16 for additional requirements regarding the purity and BTU content of its gas.

Utilities and gas pipeline companies serving customers under Statute 278.485 are exempt from these requirements.

Regulation 807 KAR 5:022 Sec. 1(2)(a); 15; and 16

Gas Storage

Public Service Commission

The Public Service Commission regulates the aboveground facilities of a gas storage operation which are used to inject or withdraw gas. Such facilities include, but are not limited to: meters, regulators and related facilities for measuring the amount of gas and regulating its pressure; and the design, construction and operation of pipelines used to deliver gas to and from storage. Depending

upon their location and use, gathering pipelines connected to a gas storage operation may be exempt from the Public Service Commission's authority.

A person who wishes to operate a gas storage operation must receive prior approval from the Public Service Commission before constructing and operating aboveground facilities, including pipelines, for a gas storage operation. The operator should include in the filing with the Public Service Commission the relevant information pertaining to the storage field itself required by the Department of Mines and Minerals, Division of Oil & Gas.

Regulation-807 KAR 5:022, Sec. 1(1)(a) (1)(5)
Statute-KRS 278.010 (3)(b) and (c), 278.504

IV. ABANDONMENT AND CLOSURE

Plugging of Wells

Division of Oil and Gas

The Division of Oil and Gas regulates plugging of all wells in Kentucky. Before plugging operations begin, the well operator shall contact the oil and gas inspector to obtain plugging instructions and establish a time and date for plugging. The well operator shall provide the inspector with a record of the formations (driller's log), depths of all casing, depths of coal seams and fresh/saline water zones. If the well penetrates a mineable coal seam, the operator shall notify, by registered mail, operators of the coal seam of intention to plug and abandon at least five (5) days prior to plugging. The operator shall use a dump bailer or pump through tubing for placing cement in the well. Important intervals which shall be isolated with minimum cement plugs are listed below:

- **Coal Seams: Cement plug to extend from 40' below deepest mineable seam to the surface.**
- **Fresh Water Zones: Cement plug to extend at least 15' below zone to surface.**
- **Producing Formation(s): Cement plug at least 15' in length placed above each producing zone or perforated interval.**
- **"Shot" Intervals: Cement plug shall be set in a stable portion of wellbore at least 20' above top of shot zone.**

The wellhead shall be cut off below ground level for cultivation unless conditions are such that there is a need for a permanent monument or vent pipe which should be subject to the approval of the Division. Within 30 days after plugging, the well operator shall file a PLUGGING AFFIDAVIT with the Division documenting the plugging procedure.

If the well is to be used as a water well by the landowner, the well will be plugged up to a point below the fresh water zone. The landowner shall file a letter with the Division requesting the use of the well for domestic water supply. The landowner shall also file with the Division of Water a completion report filled out by a certified water well driller. The Division of Oil and Gas shall not release the bond until the Division of Water has accepted the certified completion report.

Regulations-805 KAR 1:060 Wells Not Drilled through Coal Seams.
805 KAR 1:070 Wells Drilled through Coal Seams.
Statute-KRS 353.560, 353.120
Form-PLUGGING AFFIDAVIT (Form ED-38, See Appendix B)

Site Closure

Division of Waste Management
Division of Water

Abandonment of a facility is not an acceptable closure method. A facility is defined to be any well, tank, pit, structure, equipment or improvement used in the exploration, drilling, or production of oil or gas and used for treating, storing, or disposing of produced water. A tank battery and its associated wells, pits and other associated structures represents one facility. The owner/operator shall close the facility by doing the following:

- **Plug the well(s) in accordance with the Division of Oil and Gas.**
- **Dispose of produced fluids in a manner approved by the Division of Water. (See the section entitled Produced Water Disposal.**
- **Dispose of tank bottom sediments by solidifying and hauling to a permitted landfill or by taking to a recycler. For regulated underground storage tanks (UST), closure must be done in accordance with UST regulations.**
- **Remove above and underground tanks.**
- **Remove all wastes and contaminated soils in a manner approved by the Division of Waste Management (See section on Clean-up of Oil, Produced Water and Chemical Spills).**
- **Backfill the pits with clean material.**
- **Reclaim the area to prevent soil erosion**.

Facilities registered with the Division of Water will be considered active until the following additional items are completed:

- **Submission of copies of well plugging affidavits to the Division of Water.**
- **Site inspection for closure by Division of Water.**

Regulation-401 KAR 5:090, Section 4, 401 KAR Chapter 30-48
Statutes-KRS 151.125, 224.01-400, 224.01-405, 224.10-100, 224.40-100, 224.40-305, 224.60-135 and 224.70-110

Well Site Reclamation on Severed Mineral Tracts

Division of Oil and Gas

Well site reclamation is required on all severed mineral leases after the well has been properly plugged and shall be performed in accordance with the plan submitted at the time of permit application. (Refer to the section on Pre-drilling, entitled Well Permits on Severed Mineral Tracts for details in requirements of a restoration plan). An inspector will make an on-site inspection of the reclaimed location approximately one year after the area is restored to allow ample time for vegetation to be established. If no problems are observed, the operator's bond for the well will be released after the inspector files his report with the Division.

Regulation-805 KAR 1:170 (New Regulation)
Statutes-KRS 353.5901 and 353.590 Section 5
Form-PLAN TO PREVENT EROSION OF AND SEDIMENTATION FROM A WELL SITE (Form ED-10, See Appendix B).

Bond Release

Division of Oil and Gas

A bond shall be released after the well has been properly plugged and a Plugging Affidavit, Well Log and Completion Report and electric logs, if run, are submitted to the Division of Oil and Gas. A bond shall also be released if well(s) have been transferred to another operator and re-bonded by the successor operator.

Bonds can only be released by a written request from the operator or from the insurance company.

Regulation-805 KAR 1:050
Statute-KRS 353.590(5)

Bond Forfeitures

Division of Oil and Gas

A bond may be forfeited by the Division of Oil and Gas for any violation of oil and gas statutes or regulations. Bond forfeiture proceedings may begin if a well operator does not correct a violation within 45 days after receiving official notification from the Division. Written requests for extensions to correct violations may be considered if they are received before the 45 day period expires.

Statute-KRS 353.590(7)

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V. INSPECTION AND ENFORCEMENT

Division of Oil and Gas Inspection-Enforcement Authority

Division of Oil and Gas

Division of Oil and Gas inspectors have the authority to inspect any well site at any time. If a violation is observed, the operator will be notified by certified mail of the type of violation and corresponding statute. The operator will then have 45 days to contact the inspector and correct the violation. If the operator fails to correct the violation, the Division may forfeit the operator's bond. Operators should maintain a current address with the Division at all times. Failure to maintain a current address will not allow for an extension of time to correct a violation.

Civil penalties, which include imprisonment and fines assessed by the Circuit Court of the county in which the violation occurs, may also be assessed against anyone who violates provisions of statutes relating to drilling, operation and plugging of oil and gas wells. A list of commonly cited violations can be found in Appendix A.

Statute-KRS 353.200, 353.990, 353.991 and 353.992

Division of Water and Division of Waste Management Inspection-Enforcement Authority

Division of Water
Division of Waste Management

The agencies of the Department of Environmental Protection may inspect any oil and gas facility and shall provide written notification of any violation to the operator. Following the findings of any violation, the Cabinet may start enforcement action to bring the condition or activity into compliance, and any other applicable remedy including civil penalties. Civil penalties include fines up to $25,000 per day per violation and imprisonment for up to 5 years.

Regulations-401 KAR 5:090 Section 12 and 401 KAR Chapter 40
Statutes-KRS 224.10-100, 224.10-410 and 224.99-010

Kentucky Public Service Commission
Enforcement Authority

The Public Service Commission is provided with the authority to assess penalties on a utility, or any officer, agent or employee of a utility, when any provision of applicable statutes or regulation established pursuant to KRS Chapter 278 are willfully violated. Penalties against an individual shall not exceed $2500 for each offense, or criminal penalty of imprisonment for no more than 6 months, or both. A utility is subject to penalties no less than $25.00 nor more than $2500 for each offense.

Authority is granted to assess a penalty not to exceed $10,000 on any person for each violation of the Commission's regulations governing the safety of pipeline facilities or the transportation of gas, as these terms are defined in the Natural Gas Pipeline Safety Act of 1968.

Statutes-KRS 278.990 and KRS 278.992

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APPENDIX A

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GLOSSARY OF TERMS

Abandoned well: A well or hole which has never been used, or which in the opinion of the Division of Oil and Gas, will no longer be used for the production of oil or gas or for the injection or disposal of fluid.

Barrel: Forty-two (42) U.S. gallons.

Class II Wells: Wells which inject fluids: (A) Which are brought to the surface in connection with conventional oil or natural gas production and may be commingled with waste waters from gas plants which are an integral part of production operations, unless those waters are classified as a hazardous waste at the time of injection. (B) For enhanced recovery of oil or natural gas. (C) For storage of hydrocarbons which are liquid at standard temperature and pressure.

Correlative Rights: The reasonable opportunity of each person entitled thereto to recover and receive without waste the oil and gas in and under his tract or tracts, or the equivalent thereof.

Deep Well: Any well drilled and completed below the depth as defined as a shallow well. See definition of Shallow Well.

Drilling Pit: An earthen excavation for the collection of fluids associated with the drilling, construction, completion, acidizing, or fracturing of an oil or gas well.

Dry Gas: A gas well producing one (1) barrel or less of produced water at maximum production conditions during a given twenty-four (24) hour period.

Farm Tap Service: Natural gas consumption by a property owner located within one-half mile of a well or gas gathering pipeline.

Gas: All natural gas, including casinghead gas, and all other hydrocarbons not defined as "oil."

Gathering: The collection of natural gas from the well to the point of entry into either an Intrastate or Interstate pipeline.

Facility: Any well, tank, pit, structure, appurtenance or improvement used in the exploration, drilling, or production of oil or gas or used in the exploration, drilling, or production of oil or gas or used for treating, storing or disposing of produced water.

Field: The general area which is underlaid or appears to be underlaid by at least one (1) pool; and "field" includes the underground reservoir containing oil or gas or both. "Field" and "pool" mean the same thing when only one (1) underground reservoir is involved; however, "field," unlike "pool," may relate to two (2) or more pools.

Management Plan: The individual plan adopted by the Natural Resources and Environmental Protection Cabinet as the official document guiding the management, public use, and protection of an area designated under the Wild Rivers System.

Hazardous Waste: A waste designated as hazardous under 401 KAR Chapter 31.

Holding Pit: An earthen excavated depression designed to receive and store produced water at a facility.

Kentucky Pollutant: **Discharge Elimination System (KPDES)**: The Kentucky program for issuing, modifying, revoking and reissuing, terminating, monitoring and enforcing permits to discharge and imposing and enforcing pre-treatment requirements. The KPDES regulations are 401 KAR 5:050 to 5:080.

Oil: Natural crude oil or petroleum and other hydrocarbons, regardless of gravity, which are produced at the well in liquid form by ordinary production methods and which are not the result of condensation of gas after it leaves the underground reservoir.

Operator: Any owner of the right to develop, operate and produce oil and gas from a pool and to appropriate the oil and gas produced therefrom, either for himself or for himself and others; in the event that there is no oil and gas lease in existence with respect to the tract in question, the owner of the oil and gas rights therein shall be considered as "operator" to the extent of seven-eighths (7/8) of the oil and gas in that position of the pool underlying the tract owned by such owner, and as "royalty owner" as to one-eighth (1/8) interest in such oil and gas; and in the event the

oil is owned separately from the gas, the owner of the right to develop, operate, and produce the substance being produced or sought to be produced from the pool shall be considered as "operator" as to such pool. Operator also refers to any person who operates an oil & gas facility.

Person: An individual, trust, firm, joint stock company, corporation (including a government corporation), partnership, association, federal agency, state agency, city, commission, political subdivision of the Commonwealth, or any interstate body.

Produced Water: Any and all water and pollutants and combination thereof resulting, obtained, or produced from the exploration, drilling, or production of oil or gas.

Pollutant: Dredged spoil, solid waste, incinerator residue, sewage sludge, garbage, chemical, biological or radioactive materials, heat, wrecked or discarded equipment, rock, sand, soil, industrial, municipal or agricultural waste, and any substance resulting from the development, processing, or recovery of any natural resource which may be discharged into water.

Pool: An underground reservoir containing a common accumulation of oil or gas or both. Each productive zone of a general structure which is completely separated from any other zone in the structure.

Register: To file forms with the appropriate agency, in some cases agencies, which contains information such as: to oil and gas well geographic location, name of lease on which well(s) are located, production, produced water production, methods used for treating, storing, or disposing of produced water, and any other information deemed necessary by that agency.

Shallow well: Any well drilled and completed at a depth less than four thousand (4,000) feet except, in the case of any well drilled and completed east of longitude line 84 degrees and 30 minutes (84◦ 30'); shallow well means any well drilled and completed at a depth less than four thousand (4,000) feet or above the base of the lowest member of the Devonian Brown Shale (Olentangy Shale, commonly referred to as White Slate), whichever is the deeper in depth.

Solid Waste: A waste that is not a hazardous waste or a special waste.

Special Waste: A waste designated as special under KRS 224.50-760, including gas and oil drilling muds and oil production brines.

Stripper Well: Any well producing ten (10) barrels or less per day of oil.

Tank Battery: An installation where oil is collected from wellheads and separated from produced water.

Underground Injection: The subsurface emplacement of fluids by well injection but does not include the underground injection of natural gas for storage purposes.

Utility: A gas utility is any person except a city, who owns, controls or operates any facility for the production, manufacture, storage, distribution, sale, or furnishing of natural or manufactured gas, to or for the public for compensation; or the transporting or conveying of gas, crude oil or other fluid substance by pipeline to or for the public for compensation.

Water or Waters of the Commonwealth: Includes any and all rivers, streams, creeks, lakes, ponds, impounding reservoirs, springs, wells, marshes, and all other bodies of surface or underground water, natural or artificial, situated wholly or partly within or bordering upon the Commonwealth or within its jurisdiction.

Well: A borehole drilled, or proposed to be drilled, for the purpose of producing natural gas or petroleum, or one through which natural gas or petroleum is being produced, or a borehole drilled or proposed to be drilled for the purpose of injecting any water, gas, or other fluid therein or one into which any water, gas, or other fluid is being produced.

Workable or Mineable Coal Seam: A coal bed being operated commercially, a coal bed that the Department of Mines & Minerals decides can be operated commercially and the operation of which can reasonably be expected to commence within not more than ten (10) years, or a coal bed which, from outcrop indications or other definite evidence, proves to the satisfaction of the Commissioner of the Department of Mines & Minerals to be workable, and which, when operated, will require protection if wells are drilled through it.

KENTUCKY REGULATORY OFFICES

DEPARTMENT OF MINES & MINERALS
DIVISION OF OIL AND GAS
1025 Capital Center Drive
P. 0. Box 2244
Frankfort, KY 40601
(502) 573-0147

PUBLIC SERVICE COMMISSION
730 Schenkel Lane
P. 0. Box 615
Frankfort, KY 40601
(502) 564-3940

DEPARTMENT OF HOUSING, BUILDINGS & CONST.
DIVISION OF HOUSING PROTECTION
STATE FIRE MARSHAL'S OFFICE
1047 US 127 South, Suite 1
Frankfort, KY 40601
(502) 564-3626

DEPARTMENT FOR HEALTH SERVICES
RADIATION BRANCH
275 East Main
Frankfort, KY 40601
(502) 564-3970

KENTUCKY GEOLOGICAL SURVEY
UNIVERSITY OF KENTUCKY
228 Mining and Minerals Resources Building
Lexington, KY 40506-0107
(606) 257-5500

DEPARTMENT FOR ENVIRONMENTAL PROTECTION
DIVISION OF WATER
14 Reilly Road
Frankfort, KY 40601
(502) 564-3410
Emergency Response (800) 928-2380

DEPARTMENT FOR ENVIRONMENTAL PROTECTION
DIVISION OF WASTE MANAGEMENT
14 Reilly Road
Frankfort, KY 40601
(502) 564-6716

DEPARTMENT FOR ENVIRONMENTAL PROTECTION
DIVISION OF AIR QUALITY
830 Schenkel Lane
Frankfort, KY 40601
(502) 573-3382

DEPARTMENT FOR NATURAL RESOURCES
DIVISION OF FORESTRY
627 Comanche Trail
Frankfort, KY 40601
(502) 564-4496

DEPARTMENT FOR NATURAL RESOURCES
DIVISION OF ENERGY
663 Teton Trail
Frankfort, KY 40601
(502) 564-7192

DISASTER AND EMERGENCY SERVICES
State EOC Bldg., Boone Center
Frankfort, KY 40601
(502) 654-8682

FEDERAL REGULATORY OFFICES

ENVIRONMENTAL PROTECTION AGENCY - REGION IV OFFICE
Water Management Division Groundwater/Drinking Water Branch
Groundwater & UIC Section
61 Forsyth Street
Atlanta, GA 30303-3104
(404) 562-9461

U.S. DEPARTMENT OF ENERGY
1000 Independence Avenue, S.W.
Washington, D.C. 20585
(202) 586-5600

U. S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
Jackson District Office
411 Briarwood Drive
Suite 404
Jackson, MS 39206
(601) 977-5402

U. S. ARMY CORPS OF ENGINEERS-DISTRICT OFFICES

MEMPHIS DISTRICT
B-202 Clifford Davis Federal Building
167 N. Main
Memphis, TN 38103-1894
(901) 544-3471
Fax (901) 544-3266

NASHVILLE DISTRICT
P. O. Box 1070
Nashville, TN 37202
(615) 736-5181
Fax (615) 736-7145

HUNTINGTON DISTRICT
502 8th Street
P. O. Box 212
Huntington, WV 25701-2070
(304) 529-5210
Fax (304) 529-5085

LOUISVILLE DISTRICT
Regulatory Branch
P. O. Box 59
Louisville, KY 40201-0059
(502) 582-5452
Fax (502) 582-5072

KENTUCKY DIVISION OF OIL AND GAS FIELD INSPECTORS

Frankfort Main Office

Michael Steen
1025 Capital Center Drive
P.O. Box 2244
Frankfort, KY 40601
Office (502) 573-0147
Fax (502) 573-01528

COUNTIES

Anderson	Grant	Owen
Boone	Harrison	Pendleton
Bourbon	Henry	Robertson
Boyle	Jefferson	Scott
Bracken	Jessamine	Shelby
Bullitt	Kenton	Spencer
Campbell	Mason	Trimble
Carroll	Mercer	Washington
Fayette	Nelson	Woodford
Franklin	Nicholas	
Gallatin	Oldham	

Conley Rice
Rt 2, Box 265
Monticello, KY 42633
Home (606) 348-6407

COUNTIES

Clinton	
McCreary	
Pulaski	
Wayne	

Western Kentucky Region

Attn: Cy Britt - Supervisor
2565 Jones Road
Hanson, KY 42413
Office (502) 824-7523
Home (502) 322-3217

COUNTIES

Ballard	Graves	Marshall
Caldwell	Hickman	McCracken
Calloway	Hopkins	Trigg
Carlisle	Livingson	
McLean	Lyons	

Bert Combs, Jr.
P. O. Box 267
Dixon, KY 42409
Home (502) 639-6897

COUNTIES

Crittenden	Union
Henderson	Webster
McLean	

Curtis Hardison
Route 3
Greenville, KY 42345
Office (502) 338-0240
Home (502) 338-3166

COUNTIES

Christian
Logan
Muhlenberg
Todd

James W. Hazel
2243 Woodland Drive
Owensboro, KY 42301
Home (502) 771-4243

COUNTIES

Daviess
Hancock
McLean

Greg Welsh
171 Duff Lane
Beaver Dam, KY 42320
Home (502) 274-0776

COUNTIES

Breckinridge	Meade
Butler	Ohio

South-Central Kentucky Region

Attn: Jerry Gray-Supervisor
811 Eastside Drive
Horse Cave, KY 42749
Office (502) 651-1562
Home (502) 786-2451

COUNTIES

Edmonson	Hart
Grayson	Larue
Hardin	

Ralph Sharp
200 Ralph Sharp Road
Kettle, KY 42752
Home (502) 433-5178

COUNTIES

Cumberland
Metcalfe

Johnny Ray Tooley
3729 Radio Station Road
Tompkinsville, KY 42167
Home (502) 487-5165

COUNTIES

Allen	Simpson
Barren	Warren
Monroe	

Robert R. Yates
P. O. Box 457
Columbia, KY 42728
Home (502) 384-3406

COUNTIES

Adair	Lincoln
Casey	Marion
Garrard	Russell
Green	Taylor

KENTUCKY DIVISION OF OIL AND GAS FIELD INSPECTORS

Eastern Kentucky Region

Attn: Marvin L. Combs-Supervisor
140 Elk Fork Road
Hazard, KY 41701
Office (606) 435-6079
Home (606) 785-5151
Fax (606) 435-6078

COUNTIES
Knott
Perry

Michael Burnett
P. O. Box 762
Beattyville, KY 41311
Office (606) 464-4350
Home (606) 464-4692

COUNTIES
Breathitt
Clark
Elliott
Estill
Lee
Madison
Magoffin
Menifee
Montgomery
Morgan
Powell
Wolfe

Jerry Finley
P. O. Box 1318
London, KY 40743
Office (606) 546-5035
Home (606 878-7559
Fax (606) 545-9704

COUNTIES
Bell
Jackson
Knox
Laurel
Rockcastle
Whitley

Jack Deskins
P. O. Box 2126
Pikeville, KY 41502
Office (606) 433-7742
Home (606 878-7559

COUNTIES
Floyd
Martin
Pike

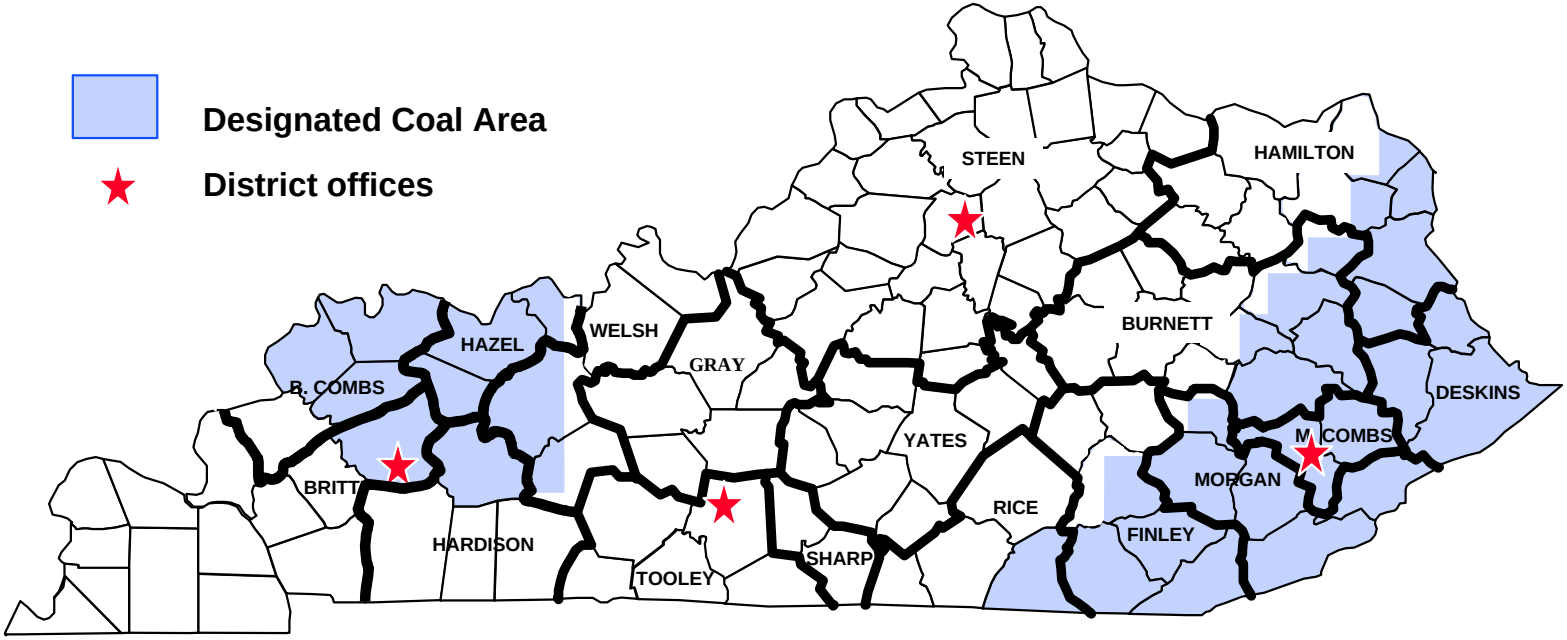
Kerry Morgan
HC 77, Box 727
Essie, KY 40827
Home (606) 374-4688

COUNTIES
Clay
Harlan
Leslie
Letcher
Owsley

Clarence Doug Hamilton
P. O. Box 166
Wittensville, KY 41274
Home (606) 297-6906

COUNTIES
Bath
Boyd
Carter
Fleming
Greenup
Johnson
Lawrence
Lewis
Rowan

KENTUCKY DIVISION OF OIL AND GAS INSPECTOR'S COUNTIES



STATE SPACING REQUIREMENTS

KRS 353.610 Provides for:

Coal Area: Oil well spacing at depths less than 4000' require 330' from all property lines and 660' between wells. Gas well spacing at depths less than 4000' require 500' from all property lines and 1000' between well.

Non-coal Area: Oil well spacing at depths less than 2000' require 200' from all property lines and 400' between wells. Oil well spacing at depths greater than 2000' but less than 4000' require 330'' from all property lines and 660' between wells. Gas well spacing for all wells at depths less than 4000' require 500' from all property lines and 1000' between wells.

For well spacing, either oil or gas, at depths greater than 4000' or, in the case of a well located east of longitude line 84 30' drilled to 4000' or to the base of the Devonian Shale whichever is deeper, refer to Deep Well Regulation 805 KAR 1:100.

KENTUCKY DIVISION OF WATER REGIONAL OFFICES

Bowling Green Regional Office
Attn: Robert Adams- Supervisor
1508 Weston Avenue
Bowling Green, KY 42104
(502) 746-7475

Counties:

Allen	Grayson	Simpson
Barren	Hart	Warren
Butler	Logan	
Edmonson	Ohio	

Columbia Regional Office
Attn: Sara Gold- Supervisor
102 Burkesville Street
Columbia, KY 42728
(502) 384-4734

Counties:

Adair	LaRue	Pulaski
Boyle	Lincoln	Russell
Casey	Marion	Taylor
Clinton	Metcalfe	Washington
Cumberland	Monroe	Wayne
Green	Nelson	

Florence Regional Office
Attn: Kevin Flowers-Supervisor
7964 Kentucky Drive, Suite #8
Florence, KY 41042
(606) 292-6411

Counties:

Boone	Gallatin	Owen
Bracken	Grant	Pendleton
Campbell	Henry	Trimble
Carroll	Kenton	

Frankfort Regional Office
Attn: Fred Claus-Supervisor
643 Teton Trail, Suite B
Frankfort, KY 40601
(502) 564-3358

Counties:

Anderson	Fayette	Jessamine	Nicholas	Woodford
Bourbon	Franklin	Madison	Powell	
Clark	Garrard	Mercer	Robertson	
Estill	Harrison	Montgomery	Scott	

Hazard Regional Office
Attn: Gene Blair-Supervisor
233 Birch Street, Suite 1
Hazard, KY 41701
(606) 435-6022

Counties:

Breathitt	Lee	Perry
Floyd	Letcher	Pike
Johnson	Magoffin	Wolfe
Knott	Martin	

London Regional Office
Attn: James Sproles- Supervisor
85 State Police Road
State Regional Office Bldg.
London, KY 40741-9008
(606) 878-0157

Counties:

Bell	Knox	Owsley
Clay	Laurel	Rockcastle
Harlan	Leslie	Whitley
Jackson	McCreary	

Louisville Regional Office
Attn: Mike Mudd-Supervisor
312 Whittington Parkway
Suite 205
Louisville, KY 40222-4295
(502) 595-4218

Counties:

Breckinridge	Meade
Bullitt	Oldham
Hardin	Shelby
Jefferson	Spencer

Madisonville Regional Office
Attn: Donald Hayes-Supervisor
Madisonville State Office Building
625 Hospital Drive
Madisonville, KY 42431-1683
(502) 824-7529

Counties:

Caldwell	Hancock	Muhlenberg
Christian	Henderson	Todd
Crittenden	Hopkins	Union
Daviess	McLean	Webster

Morehead Regional Office
Attn: Lonnie Castle-Supervisor
Mabry Bldg, KY 32 South
Morehead, KY 40351
(502) 784-6635

Counties

Bath	Fleming	Mason
Boyd	Greenup	Menifee
Carter	Lawrence	Morgan
Elliott	Lewis	Rowan

Paducah Regional Office
Attn: Jeff Cummins-Supervisor
4500 Clarks River Road
Paducah, KY 42003
(502) 898-8468

Counties:

Ballard	Graves	McCracken
Calloway	Hickman	Marshall
Carlisle	Livingston	Trigg
Fulton	Lyon	

KENTUCKY DIVISION OF WASTE MANAGEMENT REGIONAL OFFICES

Bowling Green Regional Office
Attn: Kerry McDaniel- Supervisor
1508 Weston Avenue
Bowling Green, KY 42104
(502) 746-7475

Counties:

Allen	Grayson	Simpson
Barren	Hart	Warren
Butler	Logan	
Edmonson	Ohio	

Columbia Regional Office
Attn: Cathi Blair- Supervisor
102 Burkesville Street
P O Box 335
Columbia, KY 42728
(502) 384-4735

Counties:

Adair	LaRue	Pulaski
Boyle	Lincoln	Russell
Casey	Marion	Taylor
Clinton	Metcalfe	Washington
Cumberland	Monroe	Wayne
Green	Nelson	

Florence Regional Office
Attn: Debby Angel-Supervisor
7964 Kentucky Drive, Suite #8
Florence, KY 41042
(606) 292-6411

Counties:

Boone	Gallatin	Owen
Bracken	Grant	Pendleton
Campbell	Henry	Trimble
Carroll	Kenton	

Frankfort Regional Office
Attn: Sam Lofton-Supervisor
643 Teton Trail, Suite B
Frankfort, KY 40601
(502) 564-3358

Counties:

Anderson	Fayette	Jessamine	Powell
Bourbon	Franklin	Madison	Robertson
Clark	Garrard	Mercer	Scott
Estill	Harrison	Nicholas	Woodford

Hazard Regional Office
Attn: Rebecca Noble-Supervisor
233 Birch Street
Hazard, KY 41701
(606) 435-6022

Counties:

Breathitt	Lee	Martin	Wolfe
Floyd	Leslie	Owsley	
Johnson	Letcher	Perry	
Knott	Magoffin	Pike	

London Regional Office
Attn: Cathi Blair- Supervisor
85 State Police Road
State Regional Office Bldg.
London, KY 40741-9008
(606) 878-0157

Counties:

Bell	Knox	Whitley
Clay	Laurel	
Harlan	McCreary	
Jackson	Rockcastle	

Louisville Regional Office
Attn: Lesley Henney-Supervisor
312 Whittington Parkway
Suite 201
Louisville, KY 40222-4925
(502) 595-4254

Counties:

Breckinridge	Meade
Bullitt	Oldham
Hardin	Shelby
Jefferson	Spencer

Madisonville Regional Office
Attn: Bill Bowen-Supervisor
Madisonville State Office Building
625 Hospital Drive
Madisonville, KY 42431
(502) 824-7532

Counties:

Caldwell	Hancock	Muhlenberg
Christian	Henderson	Todd
Crittenden	Hopkins	Union
Daviess	McLean	Webster

Morehead Regional Office
Attn: Karen Glancy-Supervisor
Mabry Bldg, KY 32 South
Morehead, KY 40351
(606) 784-6634

Counties

Bath	Fleming	Mason	Rowan
Boyd	Greenup	Menifee	
Carter	Lawrence	Montgomery	
Elliott	Lewis	Morgan	

Paducah Regional Office
Attn: Margie Williams-Supervisor
4500 Clarks River Road
Paducah, KY 42003
(502) 898-8468

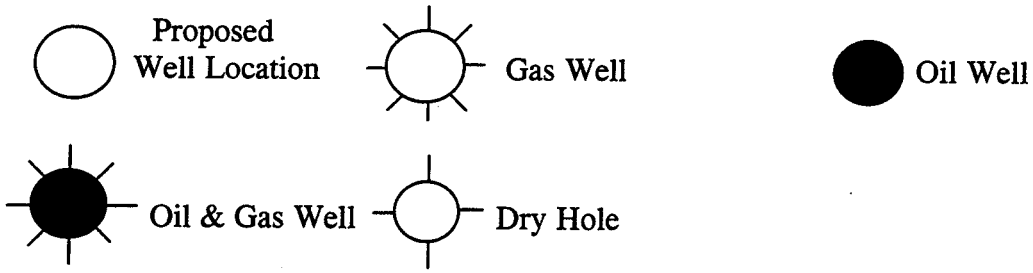
Counties:

Ballard	Graves	McCracken
Calloway	Hickman	Marshall
Carlisle	Livingston	Trigg
Fulton	Lyon	

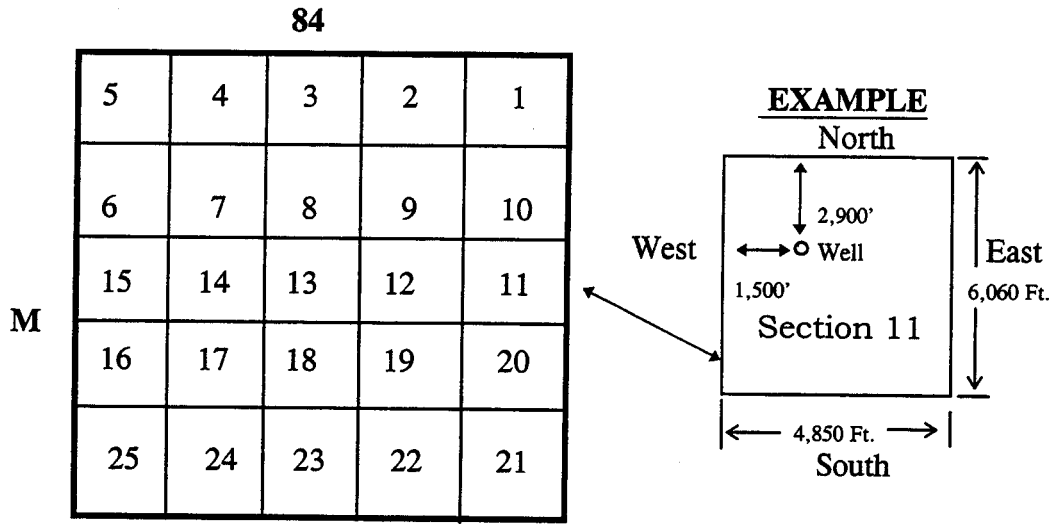
KENTUCKY WILD RIVERS

River and Date Designated	County	Length (miles)	Corridor Acreage	Endpoints (Landmarks and River Miles)	Drainage Basin
Bad Branch 1986	Letcher	4.0	1,325	Headwaters to KY 932	Cumberland
Big South Fork Cumberland River 1972	McCreary	10.2	2,450	TN State Line to Blue Heron (Mile 55.2 to Mile 45.0)	Cumberland
Cumberland River 1972	McCreary Whitley	16.1	3,300	Summer Shoals to Lake Cumberland (Mile 574.6 to Mile 558.5)	Cumberland
Green River 1972	Edmonson Hart	26.0	6,500	East Boundary of Mammoth Cave National Park to Lock and Dam No. 6 at Brownsville (Mile 207.7 to Mile 181.7)	Green
Little South Fork Cumberland River 1974	McCreary Wayne	10.4	1,400	KY 92 to Lake Cumberland (Mile 14.5 to Mile 4.1)	Cumberland
Martins Fork 1974	Harlan	3.9	680	Boundary of Cumberland Gap National Historic Park to KY 987 (Mile 31.3 to Mile 27.4)	Cumberland
Red River 1972	Wolfe Menifee	9.1	1,025	KY 746 to Swift Camp Creek (Mile 68.6 to Mile 59.5)	Kentucky
Rock Creek 1974	McCreary	18.0	6,150	TN State Line to White Oak Cr. (Mile 21.9 to Mile 3.9)	Cumberland
Rockcastle River 1972	Rockcastle Laurel Pulaski	15.9	3,350	KY 1956 at Billows to Lake Cumberland	Cumberland
TOTALS		**114.O**	**26,380**		

WELL SYMBOLS



CARTER COORDINATE MAPPING SYSTEM



DEFINITION:

7.5' Topographic maps have 1 minute (1') marks along the boundary. Wells in Kentucky are located by the Carter Coordinate system which is measured (in feet) from the 1 minute (1') section boundaries. The coordinate system traverses Kentucky in a grid pattern with 5 minute (5') sections comprised of 25 smaller 1 minute sections. The south-to-north 5 minute boundary ranges from the letters "A through Z and AA though GG". The west-to-east 5 minute boundary ranges from "0 to 91". Dimensions of the smaller 1 minute sections are 6,060 feet (north-south) by 4,850 feet (west-east). Wells are measured from the section boundary.

Above referenced example has well located in **Section 11-M-84 2,900' FNL (From North Line) X 1,500' FWL (From West Line).**

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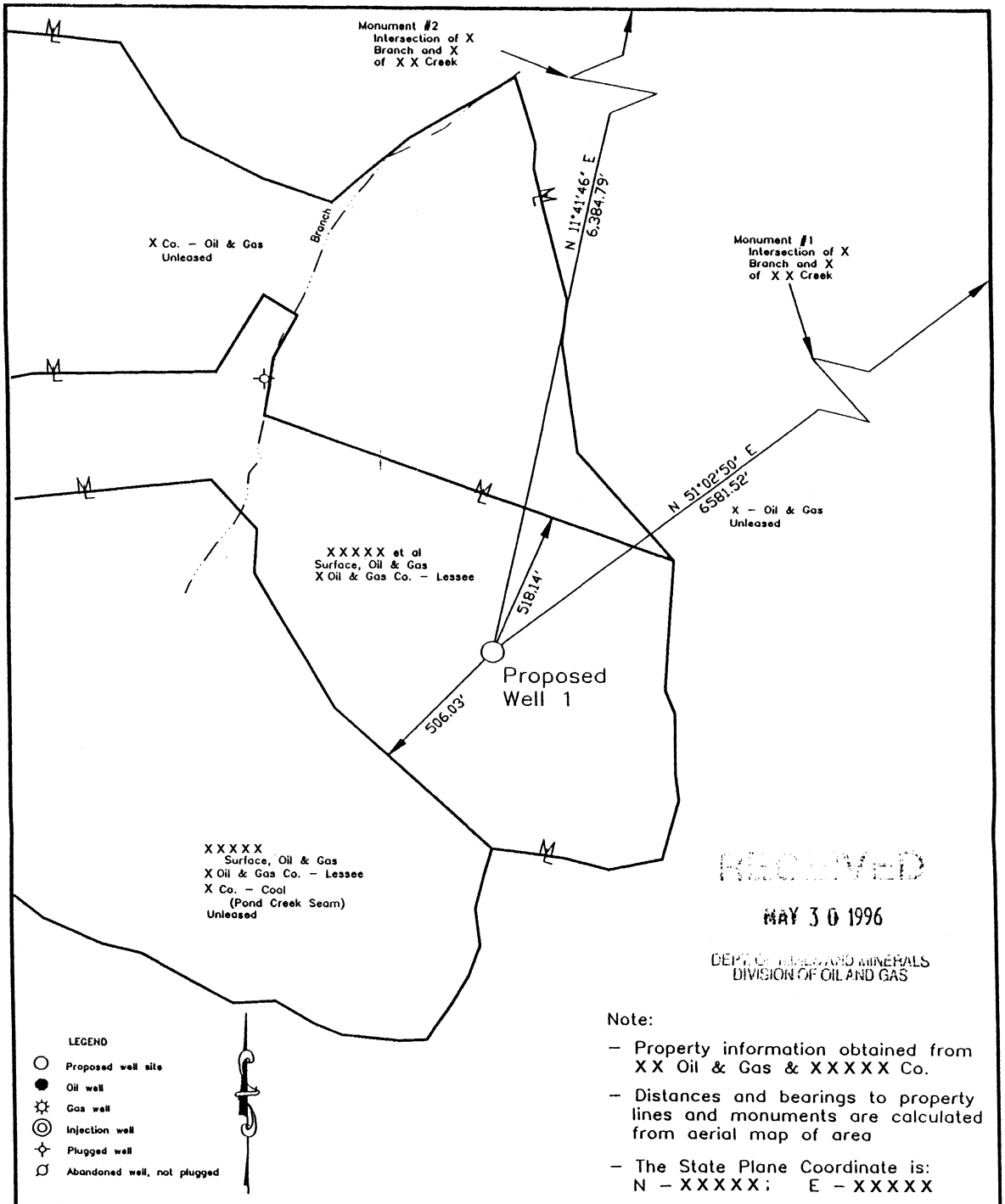

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MAY 30 1996

DEPT. OF MINES AND MINERALS
DIVISION OF OIL AND GAS

Note:

- Property information obtained from XX Oil & Gas & XXXXX Co.
- Distances and bearings to property lines and monuments are calculated from aerial map of area
- The State Plane Coordinate is: N – XXXXX; E – XXXXX

COMPANY XXXXX ADDRESS XXXXX

FARM XXXXX WELL NO. 1 ELEV.(MSL) 1330.11'

COUNTY Pike DISTRICT QUADRANGLE XXXXX

LATITUDE X° X' X" LONGITUDE X° X' X"

CARTER COOR. F.N.L. X F.E.L. X
F.S.L. F.W.L. SEC X LETTER N NO. X

NEW LOCATION [XXX] DRILL DEEPER [ ] ABANDONMENT [ ]

I HEREBY CERTIFY THAT THE ABOVE PLAT IS ACCURATE AND CORRECT AND SATISFIES THE REQUIREMENTS OF 805 KAR .1:030 TO THE BEST OF MY KNOWLEDGE AND BELIEF.

SIGNATURE REGISTRATION NO.

NAME DATE

WELL LOCATION MAP
FILE NO.

FILE NO. DRW. NO. DATE SCALE 1"=400'

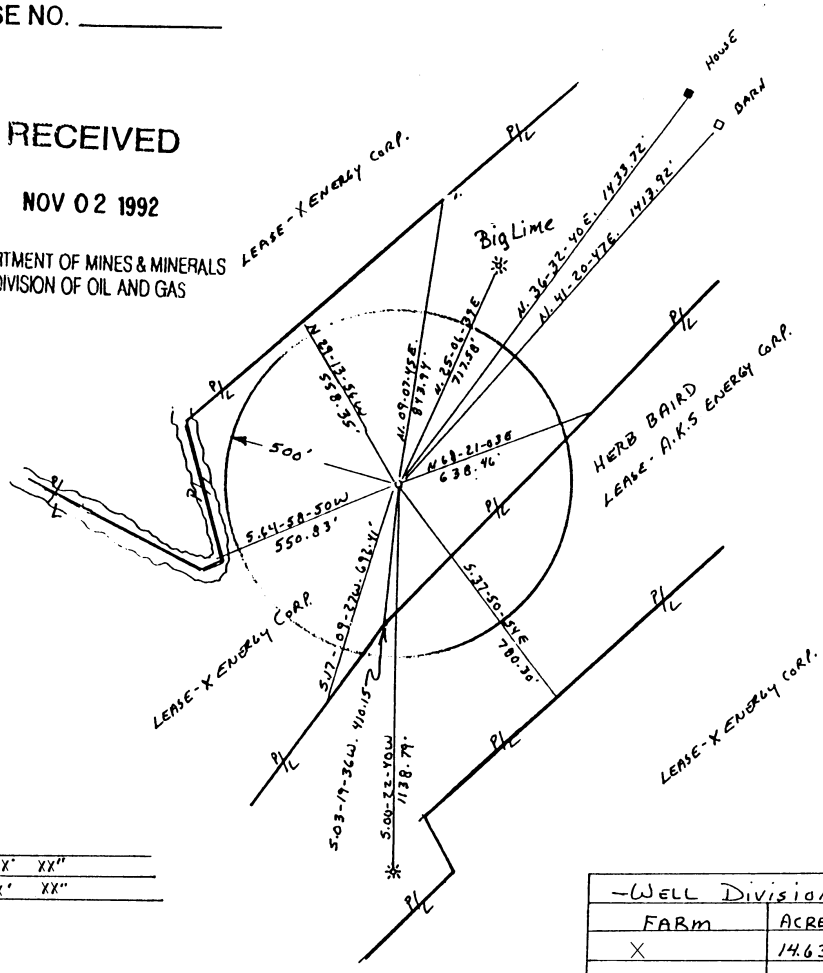
LEASE NO. _____

N.
mag.

RECEIVED

NOV 02 1992

DEPARTMENT OF MINES & MINERALS
DIVISION OF OIL AND GAS



LAT. = XX° XX' XX"
LONG. = XX° XX' XX"

WELL DIVISION		
FARM	ACRES	%
X	14.63	81.14
X	3.40	18.86
TOTAL	18.03	100 %

OPERATOR X
FARM X
COUNTY X
WELL NO. X
ELEVATION 980.0 by inst.
QUADRANGLE XX
SCALE 1" = 400'

CARTER COORD.

X = X = X
sec. letter no.

F.N.L. X
F.S.L. —
F.E.L. —
F.W.L. X

I HEREBY CERTIFY THAT THE ABOVE PLAT IS ACCURATE AND CORRECT AND SATISFIES THE REQUIREMENTS OF 805 KAR 1:030 TO THE BEST OF MY KNOWLEDGE AND BELIEF.

_____ DATE _____

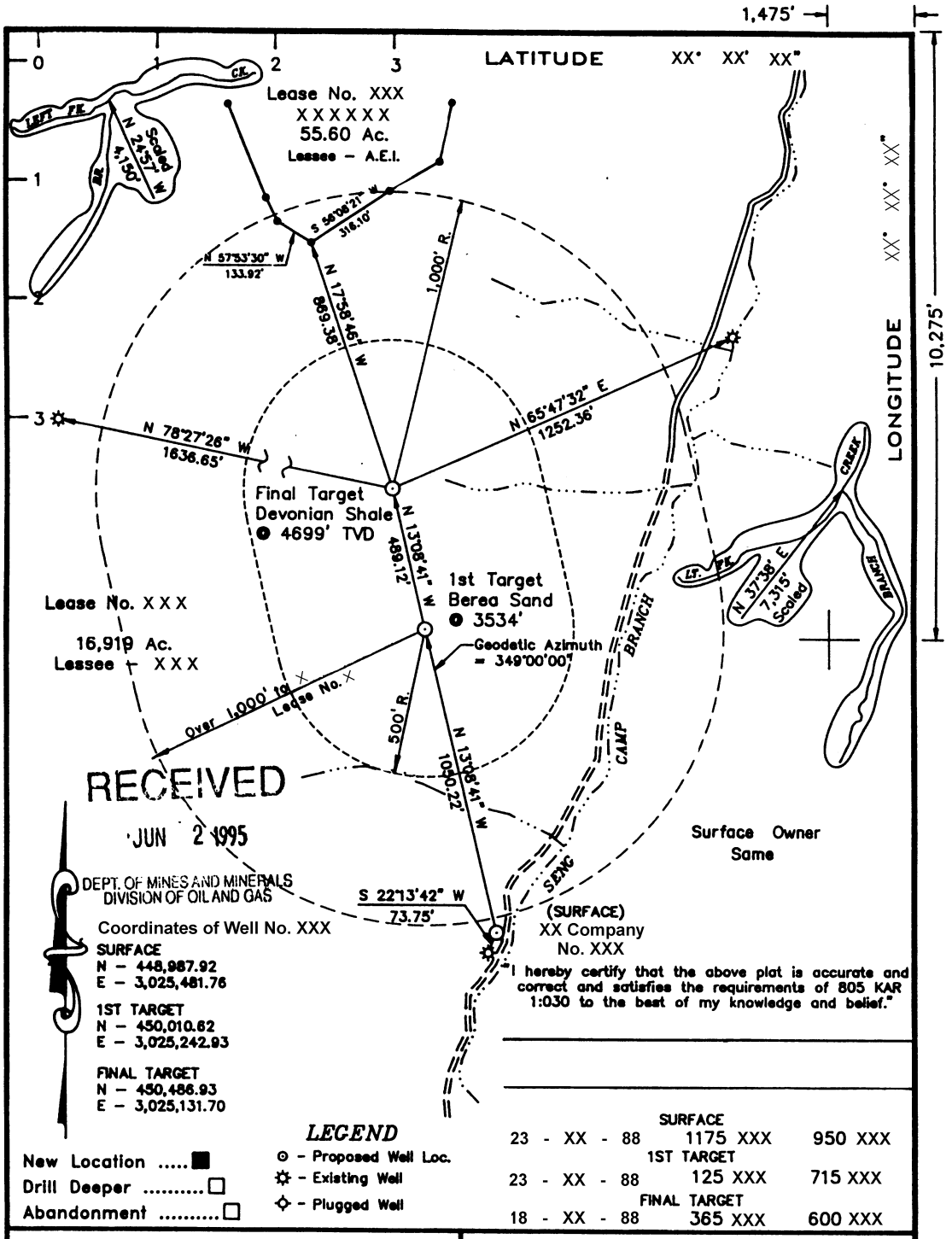
LEGEND

- o — PROPOSED WELL SITE
- ● — OIL WELL
- ◎ — INJECTION WELL
- ☼ — GAS WELL
- ◇ — PLUGGED WELL
- ø — ABANDONED WELL, NOT PLUGGED
- □ — BARN
- ▮ — HOUSE
- ▮ — CHURCH
- ≈≈≈ — CREEK, BRANCH, OR WATERWAY
- ===== — ROADWAY

REGISTERED LAND SURVEYOR

STATE OF KENTUCKY · REGISTERED PROFESSIONAL ENGINEER

PREPARED BY



Company XXXXX
Address XXXXX
Farm XXXXX
Tract _____ Acres XXXXX Lease No. XXXXX
Well (Farm) No. XXXDIR Serial No. XXXXX
Elevation (Trig.) XXXX.XX
Quadrangle XXXX
County XXXXX District _____
Engineer XXXXX
Engineer's Registration No. XXXX
File No. _____ Drawing No. XXXX - XXX - X
Date 05-26-95 Scale 1" = 400'

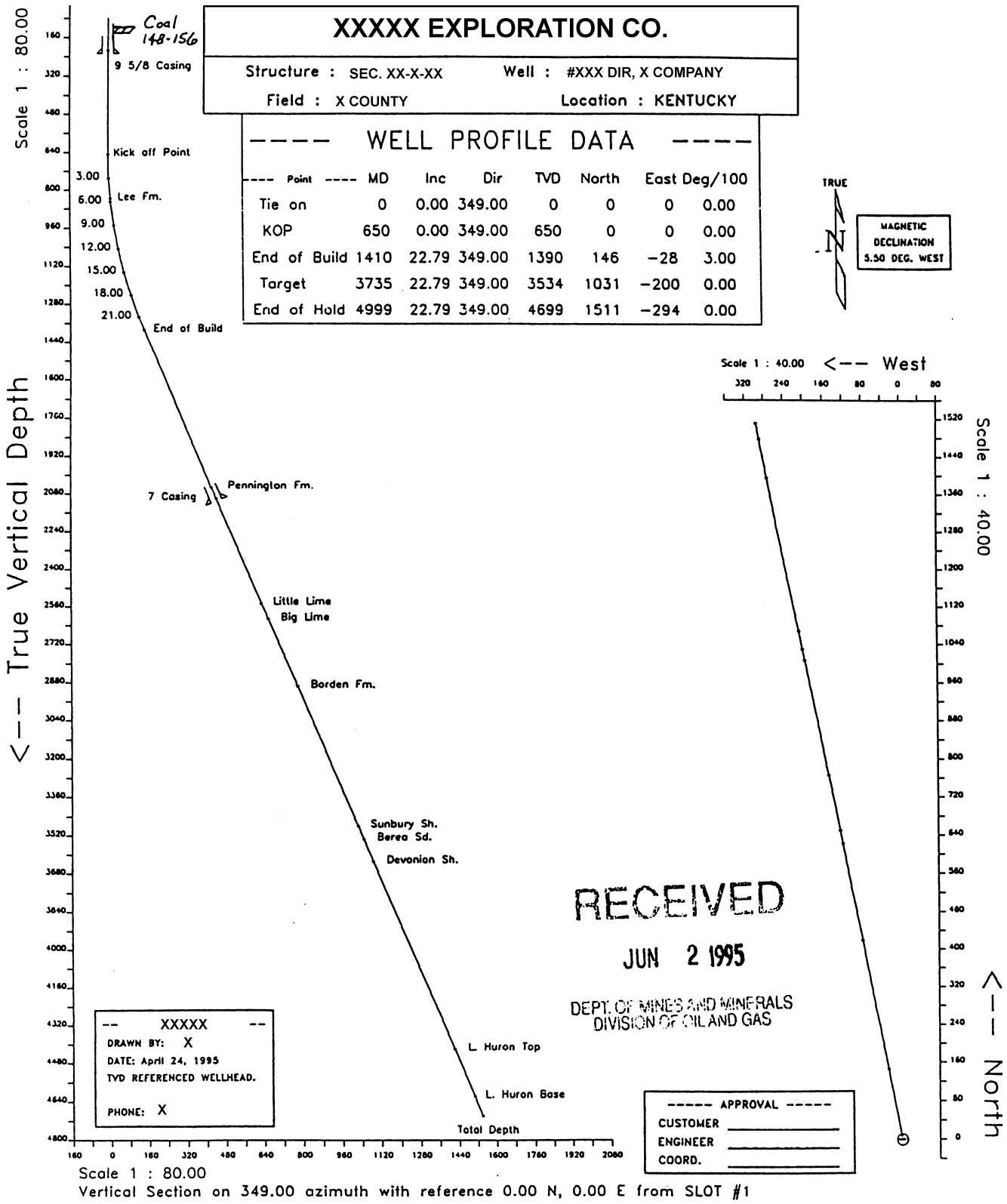
STATE OF KENTUCKY
DEPARTMENT OF MINES
OIL AND GAS DIVISION
LEXINGTON

WELL LOCATION MAP

FILE NO. _____

+ Denotes location of well on United States Topographic Maps, scale 1 to 24,000, latitude and longitude lines being represented by border lines as shown.

– Denotes one inch spaces on border line of original tracing.


XXXXX EXPLORATION CO.
Structure : SEC. XX-X-XX
Well : #XXX DIR, X COMPANY
Field : X COUNTY
Location : KENTUCKY
WELL PROFILE DATA
Point MD Inc Dir TVD North East Deg/100
Tie on 0 0.00 349.00 0 0 0 0.00
KOP 650 0.00 349.00 650 0 0 0.00
End of Build 1410 22.79 349.00 1390 146 -28 3.00
Target 3735 22.79 349.00 3534 1031 -200 0.00
End of Hold 4999 22.79 349.00 4699 1511 -294 0.00
TRUE
MAGNETIC DECLINATION 5.50 DEG. WEST
Coal 148-156
9 5/8 Casing
Kick off Point
3.00
6.00
9.00
12.00
15.00
18.00
21.00
Lee Fm.
End of Build
7 Casing
Pennington Fm.
Little Lime
Big Lime
Borden Fm.
Sunbury Sh.
Berea Sd.
Devonian Sh.
L. Huron Top
L. Huron Base
Total Depth
Scale 1 : 80.00
<-- True Vertical Depth
Scale 1 : 40.00 <-- West
Scale 1 : 40.00 --> North
RECEIVED
JUN 2 1995
DEPT. OF MINES AND MINERALS
DIVISION OF OIL AND GAS
-- XXXXX --
DRAWN BY: X
DATE: April 24, 1995
TVD REFERENCED WELLHEAD.
PHONE: X
APPROVAL
CUSTOMER
ENGINEER
COORD.
Scale 1 : 80.00
Vertical Section on 349.00 azimuth with reference 0.00 N, 0.00 E from SLOT #1

LISTING OF APPROVED LANDFILLS IN KENTUCKY

Barren County
City of Glasgow
126 East Public Square
P O Box 278
Glasgow, KY 42124-2078
(502) 651-3338 (Office)
(502) 678-4302 (Landfill)

Boone County
Bavarian Trucking Company
4837 Madison Pike
Independence, KY 41051
(606) 485-4416 (Off & Landfill)

Boyd County
Cooksey Brothers Disposal Co, Inc
15400 Ellington Run
Ashland, KY 41102
(606) 928-9633 (Off & Landfill)

Daviess County
212 Saint Ann Street
Room 202
Owensboro, KY 42303
(502) 685-8424 (Office)
(502) 229-4484 (Landfill)

Estill County
Waste Management of KY, LLC
7501 Grade Lane
Louisville, KY 40219-3440
(502) 969-2355 (Office)
(502) 723-5552 (Landfill)

Franklin County
Browning Ferris Ind. Of KY, Inc
2157 Highway 151
Frankfort, KY 40601
(502) 227-7336 (Office)
(502) 227-7257 (Landfill)

Grant County
Epperson Waste Disposal
P O Box 117
Williamstown, KY 41097
(606) 824-5466 (Office)
(606) 223-3824 (Landfill)

Graves County
Jones Sanitation, Inc
P O Box 26
Hickman, KY 42050
(502) 247-9023 (Office)

Greenup County
Green Valley Environmental Group
2343 Alexandria Drive, Suite 400
Lexington, KY 40504
(606) 223-3824 (Office)
(606) 928-0239 (Landfill)

Jefferson County
Waste Management of KY, LLC
7501 Grade Lane
Louisville, KY 42019-3440
(502) 969-2355 (Office)
(502) 966-0272 (Landfill)

Laurel County
Laurel Ridge Landfill, Inc
P O Box 1364
Corbin, KY 40702
(606) 864-4391 (Off & Landfill)

Lincoln County
Tri K Landfill, Inc
P O Box 435
1905 Highway 3249
Stanford, KY 40484
(606) 365-7806 (Off & Landfill)

Logan County
Southern Sanitation Co.
P O Box 537
Russellville, KY 42276-0537
(502) 726-9016 (Off & Landfill)

Marshall County
LWD Sanitary Landfill
P O Box 327
Calvert City, KY 42029-0327
(502) 395-8313 (Off & Landfill)

Montgomery County
Rumpke of Kentucky, Inc
10795 Hughes Road
Cincinnati, OH 45251
(513) 851-0122 (Office)
(606) 498-6798 (Landfill)

Nelson County
Nelson County Fiscal Court
1025 Airport Road
Bardstown, KY 40004
(502) 348-1800 (Office)
(502) 348-1877 (Landfill)

Ohio County
Ohio County Fiscal Court
Courthouse
P O Box 146
Hartford, KY 42347-0146
(502) 298-4400 (Office)
(502) 298-7501 (Landfill)

Pendleton County
Rumpke of Kentucky, Inc
10795 Hughes Road
Cincinnati, OH 45251
(513) 851-01223 (Office)
(606) 472-7011 (Landfill)

Pike County
Pike County Fiscal Court
P O Box 1229
Pikeville, KY 41501
(606) 353-7304 (Office)

Rowan County
Local Sanitation Services, Inc
P O Box 484
Morehead, KY 40351-0484
(606) 784-6544 (Off. & Landfill)

Spencer County
Williams Landfill, Inc
Route 3, Box 229 Kings Church
Taylorsville, KY 40071
(502) 239-6038 (Office)
(502) 239-2117 (Landfill)

Trimble County
Laidlaw Waste Systems, Inc
9001 Airport Freeway
Suite 500
N Richland Hills, TX 76180
(817) 485-9629 (Office
(502) 743-5436 (Landfill)

Union County
Addington Environmental, Inc
771 Corporate Drive
Suite 1000
Lexington KY 40503
(606) 223-3284 (Office)
(502) 822-4289 (Landfill)

Whitley County
Tri-County Sanitary Landfill, Inc
Route 8
P O Box 245-A
Corbin, KY 40701
(502) 528-8608 (Landfill)

Contact the Division of Waste Management at (502) 564-6716 for up-to-date listing of landfills.

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GUIDELINES FOR SUBMITTING WELL SAMPLES

To ensure that credit is received for submitting requested well samples, please follow these instructions carefully.

(1) Fill out all information on the tag of each sample bag completely and legibly, in permanent ink (ball point pen). Information written with felt-tip pen or pencil is easily washed off, making it impossible to identify samples. As an extra precaution, place a copy of the drilling permit in the box with the sample set. If samples are not properly identified, no credit can be given for submitting sample sets.

(2) Place the samples in feed sacks, burlap bags, or a strong cardboard box. Please do not put sample sets in plastic trash bags; this causes the sample bags to rot and split open, making the samples useless. Please do not overfill the sacks, making them difficult to handle.

(3) Individual sample bags should be completely filled and tied into manageable bundles of 10 to 20 bags each. Please do not tie knots in the strings of the individual sample bags.

(4) Samples should be complete for each well requested, with continuous samples from surface to total depth.

(5) Samples may be dropped off at the Kentucky Geological Survey's Well Sample and Core Repository in Lexington or at any of the designated collection stations located throughout the state.

If you have any questions concerning these instructions or about the locations of sample collection stations, please call the KGS Well and Core Repository.

LOCATIONS OF SAMPLE COLLECTION STATIONS

LEXINGTON **
Kentucky Geological Survey
Well Sample & Core Repository
554 Forbes Road
(606) 255-2439

PIKEVILLE
Allen Supply & Machine Shop
106 South Mayo Trail
(606) 432-1044

HAZARD
Hazard Village Shopping Center
West end of shopping center next to
vehicle impoundment area
U.S. Highway 80
(606) 436-3323

ALBANY
Clinton Oil Field Supply Company
U. S. Highway 127 10 miles north of Albany
(606) 387-7533

GLASGOW
Page Brothers Supply Company
Kentucky Street
(502) 651-8706

HENDERSON
Ken's Pump & Supply Company, Inc
1531 South Green Street
(502) 827-1872

OWENSBORO
Owensboro Supply Company
731 East 18th Street
(502) 683-8311

GREENVILLE
Wildcat Pipe & Supply Company
U. S. Highway 62 West
(502) 338-0911

**Location will change May 1, 1997. Call (606) 257-5500 for more information.

LOCATIONS OF WELL SAMPLE COLLECTION STATIONS

IMPORTANT

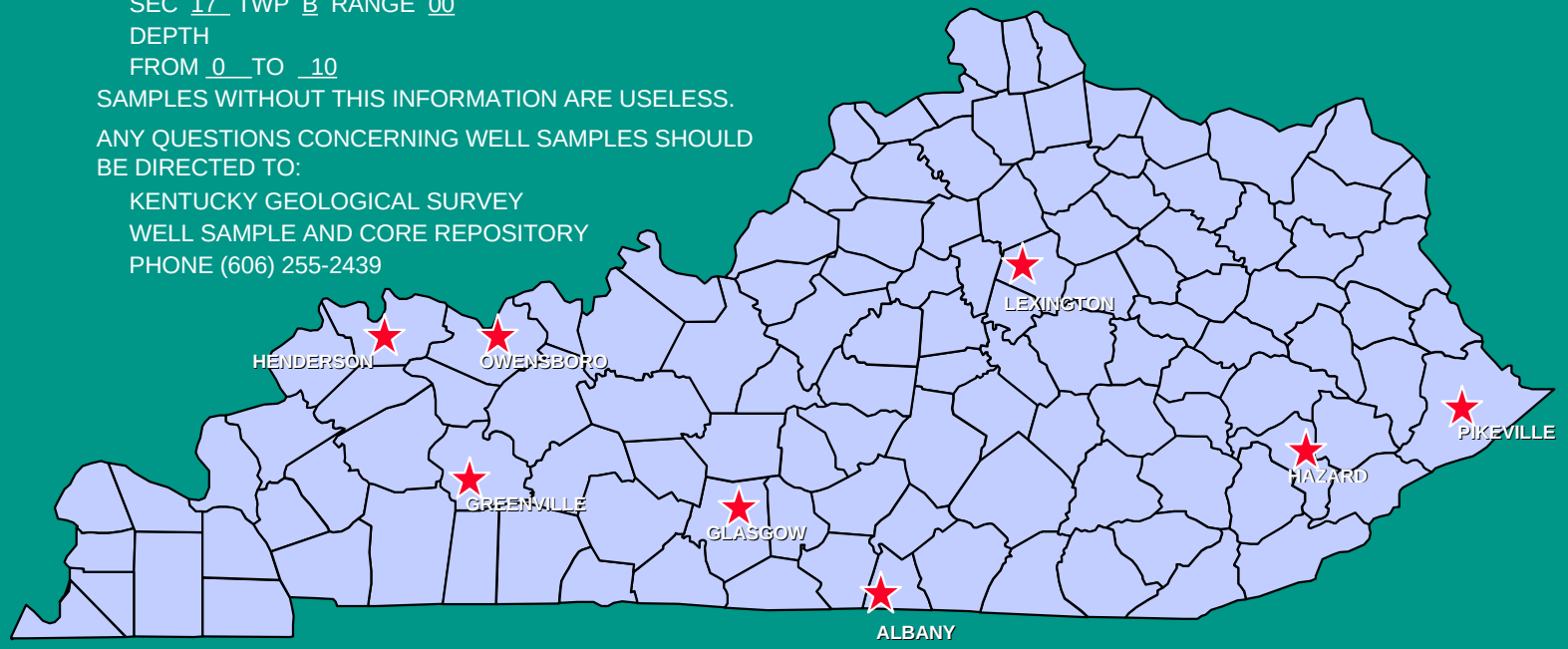
ALL SAMPLES MUST BE PROPERLY IDENTIFIED AND LABLED WITH THE FOLLOWING INFORMATION:

COMPANY: KY OIL CO.
LEASE NAME: JOHN DOE WELL NO: 1
SEC 17 TWP B RANGE 00
DEPTH
FROM 0 TO 10

SAMPLES WITHOUT THIS INFORMATION ARE USELESS.

ANY QUESTIONS CONCERNING WELL SAMPLES SHOULD BE DIRECTED TO:

KENTUCKY GEOLOGICAL SURVEY
WELL SAMPLE AND CORE REPOSITORY
PHONE (606) 255-2439



SEE REVERSE FOR DETAILED LOCATIONS OF COLLECTION STATIONS AND SAMPLE SUBMITTAL GUIDELINES

Example Of A Danger Sign Required in 805 KAR1:160

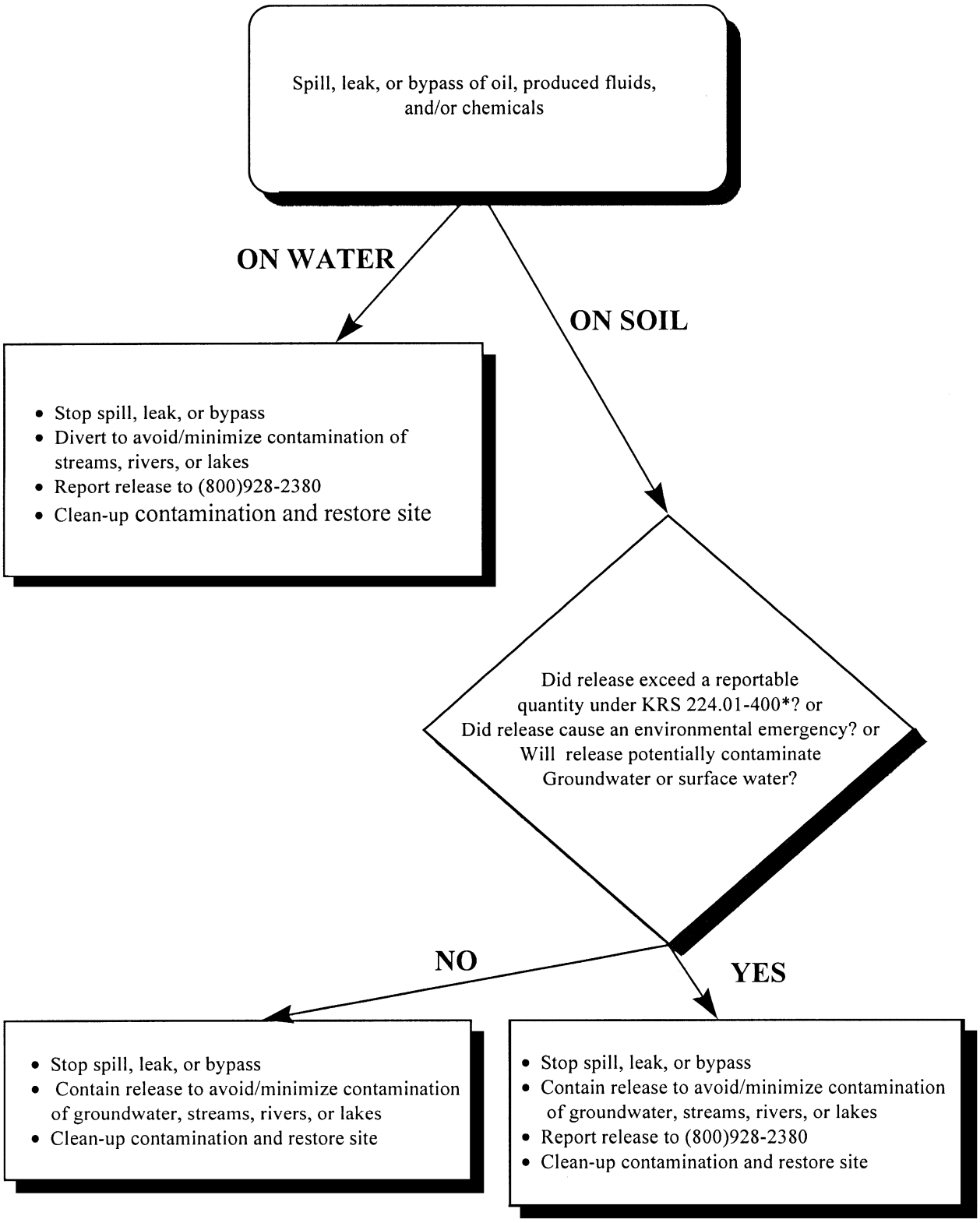
An operator shall prepare or have a safety sign printed similar to the one shown below and with the following dimensions.

1. The sign shall be approximately 17"x 28" inches.
2. The word **DANGER** shall have letters approximately 3 to 4 inches in height.
3. The NFPA numbers shall have a height of approximately ½ to 1 inch.
4. The words "PETROLEUM CRUDE OIL", "EXTREMELY FLAMMABLE LIQUID AND VAPOR", "MAY CAUSE FLASH FIRES" and "NO TRESPASSING" shall have letters approximately ½ to 1 inch in height.
5. The words "NO SMOKING AND OPEN FLAME" shall have letters approximately 1 to 1 ½ inches in height. A no smoking symbol with a cigarette in a circle with a cross through shall be on each side of the words "NO SMOKING AND OPEN FLAME".

The following coloration shall be required:

1. The NFPA number one (1) shall be colored black and be in a blue square and the number three (3) shall be colored black and be in a red square and the number zero (0) shall be colored black and be in a yellow square.
2. The NFPA number instead of being in a colored square may be the color of the square in the same respective position as it's square.
3. The background color of white works well with NFPA colors and numbers.
4. The background color shall contrast with all the foreground letters and numbers to enable them to be clearly seen.

The following is an example of the sign:



* The reportable quantity for oil (including lubricants and other petroleum products) is 25 gallons, except for diesel fuel the reportable quantity is 75 gallons

DIVISION OF OIL AND GAS
Common Cited Violations

KRS 353.150-Failure of operator to not close well within a reasonable time not exceeding three (3) months after well completion to prevent escape of oil, gas or salt water from wellhead.

KRS 353.160-Failure to prevent escape of gas when it is apparent waste could have been prevented, operator usually cited due to negligence. In the case of gas being vented or flared to produce oil, the operator shall make a "good faith" effort to conserve as much gas as reasonably possible.

KRS 353.180-Pull Pipe without Plugging Well. Operator shall plug well if casing is removed from an oil or gas well.

KRS 353.205-Failure to Report Oil and/or Gas Production. Operator shall supply Division of Oil and Gas with annual production by April 15, for previous year's production.

KRS 353.500-Failure to Conduct Operations Safely. Operator shall produce wells in a safe manner to prevent damage to property, employees and general public.

KRS 353.520 Section 2-D and 805 KAR 1:020-Failure to protect freshwater zones and/or mineable coal seams by not properly cementing casing to surface.

KRS 353.550-Improperly Abandoned. Wells shall be in production or are considered Improperly Abandoned. Gas wells shut-in due to market conditions are not included.

KRS 353.560 (3)-Operating a Vacuum without a Permit. Operator shall file permit to use vacuum on reservoir to enhance oil production.

KRS 353.570-Drilling Without a Permit. Wells drilled, deepened or re-opened for the production of natural gas, crude oil or for water injection into a formation to enhance production requires operator to obtain a well permit.

KRS 353.590-Operating without Proper Bonding. Operator shall post blanket or individual bond on well before drilling or acquiring well from another operator.

KRS 353.590 (6)-Failure to Transfer Well to Successor Operator. Bonded operator shall file Well Transfer forms with Division of Oil and Gas to transfer well to another operator.

KRS 353.5901-Failure to Reclaim Well Location on Severed Minerals. Wells on severed mineral tracts shall be reclaimed 1 year after termination of operations, reclamation shall conform to procedure on "Plan to Prevent Erosion of and Sedimentation From A Well Site."

KRS 353.610-Improper Spacing of Well. Proposed wells shall adhere to spacing from existing wells and property lines. See "Shallow and Deep Well" spacing requirements in manual.

KRS 353.651-Drilling Deeper than 4,000 Ft.-Below 4,000 ft. is considered "Deep" well, with exception to area where Devonian Shale productive interval exceeds 4,000 ft. east of longitude 84 degrees 30 minutes. Deep wells shall conform to deep well spacing.

KRS 353.656-Failure to Post "DANGER" Signs. Operator shall post Danger signs on prominent location on all oil storage tank batteries and facilities.

KRS 353.660-Failure to File Well Records-Operator shall file "Well Log and Completion Report" and electric logs with the Division of Oil and Gas within 90 days after drilling. If well is plugged, a "Plugging Affidavit" is also required.

DIVISION OF WATER
Common Cited Violations

401 KAR 5:015-Failure to report a spill/bypass, such as an unreported oil spill, spill of produced water, and spill from a drilling pit.

KRS 224.01-400-Failure to report and cleanup any spill that creates an environmental emergency. Improper or inadequate cleanup of a spill would result in remedial action taken to restore the environment.

401 KAR 5:031-An event where the waters of the Commonwealth have incurred degradation. For example, the spill or release of crude oil, brine (produced water) or drilling fluids to a stream.

401 KAR 5:055-Failure to obtain a Kentucky Discharge Elimination System (KPDES) permit before discharging produced water or drilling fluids.

401 KAR 5:065-Failure to comply with the KPDES permit or program requirements and standards. Example: analysis of the discharge shows non-compliance with the KPDES permit's conditions or failing to submit Discharge Monitoring Report (DMR) forms. Also, in cases where a discharge violates water quality standards.

401 KAR 5:090, Section 4-Failure to register an oil/gas facility within sixty (60) days after production begins. Failure to post a sign identifying the facility's registration number, operator's name, address, phone number and if applicable, the KPDES permit number. Failure to notify the Division of Water of a change in owner/operatorship of the facility and/or changes in the method of storing and disposing of the produced water.

401 KAR 5:090, Section 13-Failure to implement and/or maintain an adequate Spill Prevention and Countermeasure (SPCC) plan. For example, a tank battery without a dike or berm around it and it not having the capability to retain volume of the largest tank within that battery.

401 KAR 5:090, Section 10-Unauthorized use of a pit. For example, a drilling pit being used as a holding pit without obtaining a construction and operational permit for this use.

401 KAR 5:090 Section 6-Failure to obtain approval from the Director of the Division of Water to transport produced water off site prior to doing so.

401 KAR 5:090 Section 5-Failure to dispose of produced water under an approved method, so that water quality standards are not violated.

KRS 151.250 and 401 KAR 4:060-Activities cited are: placement of fill material in the 100-year floodplain, the construction of a bridge, installation of a culvert, or a stream alteration without a permit.

DIVISION OF WASTE MANAGEMENT
Common Cited Violations

401 KAR 30:031- Violation of environmental performance standards.

401 KAR 32:010 - Failure to determine if a waste the operation generates is a hazard waste.

KRS 224.01-400(1) THROUGH (11)- Failure to report releases above a reportable quantity.

KRS 224.01-400(18)- Failure to remediate all releases, even those that are below a reportable quantity.

KRS 224.01-405- Failure to perform appropriate corrective action in response to a petroleum release.

KRS 224.40-100(1)- Failure to transport to or dispose of waste at any site or facility other than one for which a permit for waste disposal has been issued by the Division of Waste Management.

KRS 224.40-100(2)- Using or creating an open dump.

KRS 224.40-305- Establishing, constructing, operating, maintaining, or permitting the use of a waste site or facility without a permit.

THE ANSWER SHEET

Dec. 1995

Issue/Question	Number	Extension	Contact
Abandoned Drums/Oil Tanks	564-2380	150	Bill Burger
Abandoned Mine Lands	564-2141		Steve Hohmann
Abandoned Vehicle Recovery	564-6716	243	Bill Wilson
Above-ground Storage Tanks	564-3626		State Fire Marshall
Acid Rain	573-3382	343	Lynda Sherrard
Admiral Certificates	564-5525	63	Cindy Schafer
Adopt-a-Highway Program	564-4890		Transportation Cabinet
Agricultural District Program	564-3080		Steve Coleman
Agricultural Equipment Revolving Fund	564-3080		Rita Puckett
Agricultural Water Quality Authority	564-3080		Steve Coleman
Air Quality Permits	573-3382	455	Allan Elliott
Air Releases (vapors, fumes, odors)	573-3382	305	Mark Ritter
Air Quality Index (800-AIR-IN-KY)	573-3382	443	Larry Garrison
Air Public Education/Information	573-3382	416	Lillie Cox
Alternative Fuels	564-7192 or 800/282-0868		Geoffrey Young
Ambient Groundwater Monitoring Network	564-3410	443	David Leo
Arson Reporting	800/25-ARSON		
Asbestos	573-3382	421	Parker Moore
Best Management Practices			
Forestry	564-4496		Larry Lowe
Water	564-3410	179	David Rome
		495	Corrine Wells
Conservation	564-3080		Steve Coleman
Bioassay	564-3410	497	Charles Roth
Biodiversity			
Forestry	564-4496		Mark Matuszewski
Nature Preserves	573-2886		Robert McCance
Bird Roosts	564-4856		Dept. of Fish & Wildlife
Blackwater Release	564-3410	177	Sam Lester
Boat Titles	564-2737		Transportation Cabinet
Boil Water Notices	564-3410	177	Sam Lester
			Roger Conn
Burning Restrictions			
Air	573-3382	305	Mark Ritter
Forestry	564-4496		Bernie Andersen
Clean Air for Kentucky Education Program	573-3382 or 800/928-0047		Lillie Cox
Clean Air Act	573-3382	367	Ken Hines

Issue/Question	Number	Extension	Contact
Clean Air Act Ombudsman	564-3350 or 800/926-8111		Rose Marie Wilmoth
Clean Community Program	564-6716	238	Joy Morgan
Clean Vessel Act	564-3410	177	Sam Lester
Clean Water Act	564-3410	438	Charles Collier
Comparative Risk	564-5525	65	Nancy Fouser
Complaints			
Air	573-3382	305	Mark Ritter
Waste	564-6716	277	Carol Sole
Water	564-3410	461	Donna Drury
Composting	564-6716	271	Mark Crim
Conservation Districts	564-3080		Steve Coleman
Conservation (Soil) Education	564-3080		Martin Bess
Dam Failure	564-3410		Jim Marchant
			Tony Childers
Emergency Situations Only	564-2380	150	Bill Burger
Dam Safety	564-3410		Jim Marchant
			Leon Smothers
Dead Animals on Road	564-6998		Dept. of Fish & Wildlife
DEP Scholarship Program	564-2150	115	Glenda Abrams
Dioxins/PCBs	564-3410	497	Charles Roth
Drinking Water	564-3410	543	Vicki Ray
Drought Response	564-3410	181	Kathy Collins
			Leon Smothers
Dry Cleaners' Information	573-3382	343	Lynda Sherrard
Ecosystem Management	564-4496		Cary Perkins
Employment (NREPC)	564-2042	44	Trinta Cox
Endangered & Threatened Species	573-2886		Nature Preserves Comm.
Energy Conservation	564-7192 or 800/282-0868		Div. Of Energy
Energy Education	564-7192 or 800/282-0868		Div. Of Energy
Energy Grant Opportunities	564-7192 or 800/282-0868		Betty Yates
Energy Poster	564-7192 or 800/282-0868		
Energy, Renewable (solar, geothermal, etc.)	564-7192 or 800/282-0868		Geoffrey Young
Energy Shortages	564-7192 or 800/282-0868		Greg Guess
Environmental Education Council	564-5937		Jane Wilson
Environmental Quality Commission	564-2150		Leslie Cole
Environmental Response Team	564-3410	150	Bill Burger
Environmental Services-Laboratory Testing	564-6120		William Davis
Environmental Trends/Conditions	564-2150		Leslie Cole
Fish Kills	564-3410	177	Sam Lester
Fish & Wildlife Camps	564-4762		Dept. of Fish & Wildlife

Issue/Question	Number	Extension	Contact
Fish Consumption Advisories	564-3410	433	Mike Mills
Flood Insurance	564-3410	424	Donna Hall
Floodplain Management	564-3410		Keith Crim
			Leon Smothers
Forests	564-4496		Ron Meyer
Forest Health	564-4496		Bernie Andersen
Forestry Education	564-4496		Ron Meyer
Forest Fire Laws	564-4496		Bernie Andersen
Forest Products Council	564-4496		Larry Lowe
Forest Product Utilization	564-4496		Larry Lowe
Forest Stewardship	564-4496		Cary Perkins
Freedom of Information/Open Records			
Dept. for Environmental Protection	564-2150		Alex Barber
Dept. of Natural Resources	564-2184		Joe Dietz
Dept. for Surface Mining	564-6940		Irven Pope
Office of Legal Services	564-5576		Brenda Lowe
			Iris Skidmore
Freon	573-3382	389	Monica Hale Kehrt
Game Farm (tours of)	564-4762		Dept. of Fish & Wildlife
Geographic Information Systems			
Statewide	573-1460		Doug Robinson
			OGIS
Cabinet	564-5174	705	Ken Bates
Groundwater	564-3410	458	Peter Goodman
Groundwater Protection Plans	564-3410		Beverly Oliver
		458	Peter Goodman
Groundwater Withdrawal Permits	564-3410	181	Kathy Collins
Hazardous Waste	564-6716	246	Mike Welch
Hazardous Waste Incinerators	564-6716	246	Mike Welch
Highway Wildflower Program	564-4556		Transportation Cabinet
Hearings	564-7312		Barbara Foster
Houseboat Discharge (Boat MSDs)	564-3410	177	Sam Lester
Houseboat Discharge (Marina Pumpout Stations)	564-4762		Dept. of Fish & Wildlife
Hunting & Fishing Licenses Permits	564-4336		Dept. of Fish & Wildlife
Incinerators (municipal, medical & industrial)	573-3382	308	Roger Cook
Indoor Air	573-3382	389	Monica Hale Kehrt
Karst Groundwater Problems	564-3410	443	David Leo
Kentucky River Authority	564-2886		Hugh Archer
Land, Air & Water Publication Editor	564-5525	66	Faun S. Fishback
Land, Air & Water (Mailing List)	564-5525	63	Cindy Schafer
Landfarming Certification	564-6716	260	Sharon Watkins
Landfill Operator Certification	564-6716	260	Sharon Watkins

Issue/Question	Number	Extension	Contact
Livestock Waste Treatment	564-3080		Steve Coleman
Locks & Dams (KY River)	564-2866		KY River Authority
Maxey Flats	564-6716		Jan Jasper
Naturally Kentucky Posters	564-5525	63	Cindy Schafer
Nature Preserves	573-2886		Joyce Bender
Noncoal Permitting & Licensing Enforcement (Clay, Sand, Gravel)	564-2340	508	Roy McQueary
Nonpoint Source Program	564-3410	495	Corrine Wells
Nonpoint Source Section 319(h) Grants	564-3410	495	Corrine Wells
Nonpoint Source Education	564-3410	179	David Rome
Oil and Gas	502/573-0147		Mines & Minerals
Oil and Gas Licensing	564-3410	593	Dan Juett
Ombudsman	564-3350	721	Pamla Wood
Outdoor Classroom Information	564-5525	63	Cindy Schafer
Paint Disposal	573-3382	343	Lynda Sherrard
Parks (State)	564-2172		Dept. of Parks
	800/255-7275		Info & Reservations
Pesticides	564-4696		Agriculture
Press/Reporter Contacts			
Air	573-3382	303	Eva Smith-Carroll
Waste	564-6716	200	Annette Hayden
Water	564-3410	552	Maleva Chamberlain
Radiation	564-7398		Human Resources
Radon	564-4856		Human Resources
Recycling	564-6716	232	Charlie Peters
Reclamation	564-2340		Mark Thompson
Risk Assessments	564-2150	501	Al Westerman
Rocks and Geology	606/257-5500		KY Geological Survey
Septic Tanks	564-3970		Health Services
Sewers	564-3410		Bennie McWain
		437	Bruce Scott
Small Operators Assistance Program	564-2356	702	J.R. Hamm
Soil Erosion & Water Quality Cost Share Program	564-3080		Steve Coleman
Soil & Water Conservation Commission	564-3080		Steve Coleman
Spill Control	564-3410	150	Bill Burger
Solid Waste	564-6716	239	George Gilbert
State of the Environmental Report	564-2150		Leslie Cole
Stormwater Runoff	564-3410		Doug Allgeier
		437	Bruce Scott
Stream & River Water Quality	564-3410	474	Tom VanArsdall
Stream Construction	564-3410		Keith Crim

Issue/Question	Number	Extension	Contact
.....	.....	.....	Ron Dutta
.....	.....	.....	John Bottom
Stream Dredging	564-3410	485	John Dovak
Superfund Sites (State)	564-6716	.....	Bob Padgett
(Federal)	564-6716	.....	Rick Hogan
Surface Coal Mining (Operation & Rec.)	564-2340	503	Keith Smith
Surface Coal Mining Complaints	564-2340	531	Judy Tipton
Surface Coal Mining Enforcement Records	564-2340	533	Dixie Mullins
Surface Coal Mining Blaster Certification	564-2340	512	Janet Lea
Surface Coal Mining Bond Maintenance	564-2340	523	Connie Downey
Surface Coal Mining Penalty Assessment and Enforcement	564-2340	418	Jerri Wallace
Swimming Advisories	564-3410	439	Gary Beck
Swimming Pools	564-4856	.....	Human Resources
Timber Management	564-4496	.....	Cary Perkins
Tire Dumps	564-6716	.....	Dave Morgan
Toxic Release Inventory	564-2150	123	Gayla Stewart
Tree Farm Program	564-4496	.....	Cary Perkins
Tree Seedlings	564-4496	.....	Ron Meyer
Vehicle Emission Testing	573-3382	311	David Gore
Urban Forestry	564-4496	.....	Diana Olszowy
Underground Storage Tanks	564-5981	.....	Petroleum Storage
.....	.....	.....	Tank Commission
.....	564-6716	249	Doyle Mills
Used Oil Recycling	800/282-0868	.....	Div. Of Energy
Waste & Recycling Education	564-6716	200	Annette Hayden
Wastewater State Revolving Fund	564-3410	540	Kay Hines
Wastewater Treatment	564-3410	519	Mike Tipton
Wastewater Treatment Operator Certification & Training	564-3410	362	Lisa Detherage
Water Treatment & Distribution Operator Certification & Training	564-3410	362	Lisa Detherage
Wastewater Discharge Permits	564-3410	437	Bruce Scott
Water Conservation	564-3410	181	Kathy Collins
.....	.....	.....	Leon Smothers
.....	.....	.....	Dionne Fields
Water Patrol	564-3074	.....	Col. Donovan Smith
Water Public Education/Information	564-3410	552	Maleva Chamberlain
Water Quality Certification	564-3410	485	John Dovak
Water Shortage	564-3410	181	Kathy Collins
Water Supply	564-3410	.....	Hassein Rakhshan
.....	.....	.....	Roger Conn

Issue/Question	Number	Extension	Contact
Water Supply Planning	564-3410		Hassein Rakhshan
			Mostafa Nikou
Water Toxicity Testing	564-3410	497	Charles Roth
Water Withdrawal	564-3410	181	Kathy Collins
			Dionne Fields
Watershed Conservancy District	564-3080		Steve Coleman
Water Watch Program	564-3410	473	Ken Cooke
Water Well Drilling	564-3410	597	Chester Bojanowski
Wellhead Protection Program	564-3410	458	Peter Goodman
Wetlands	564-3410	183	Jeff Grubbs
Wild Rivers Program	564-3410	520	Morgan Jones
Wildlife	564-4406		Dept. of Fish & Wildlife
Wire Burning	573-3382		Don Wills
Zebra Mussels	564-3410	437	Bruce Scott

LIST OF MATERIALS FOR PLASTIC SERVICE LINE

REQUIRED BY APPLICANT FOR GAS SERVICE UNDER KRS 278.485

Item	Description
1.	1 – 1" heavy brass stopcock, or 1" ball valve
2.	1 – 1" street ell, heavy black steel
3.	2 – 1" ground joint union, heavy black steel
4.	Drip tank, minimum test pressure 600 psig, includes ½" stopcock and plug
5.	1" medium pressure regulator, spring type, 200 psig inlet to 10-25 psig outlet, minimum working pressure 600 psig, internal relief capabilities optional
6.	1 " low pressure regulator, spring type, 10-25 psig inlet to 8 oz. outlet, minimum working pressure 100 psig, must be equipped with automatic cutoff and manual reset, internal relief capabilities optional
7.	1 – 1" tee, black steel
8.	1 – 1" x ¼" bushing, black steel
9.	1 – ¼" plug, black steel
10.	1 – 1" standard brass stopcock
11.	1 – 1¼" x 5' pipe threaded on one end, new black steel
12.	2 – 1¼" 90° compression ells
13.	1¼" approved plastic gas pipe with tracer wire
14.	1¼" x 36" steel pipe, threaded on both ends
15	1 – 1¼" standard brass stopcock

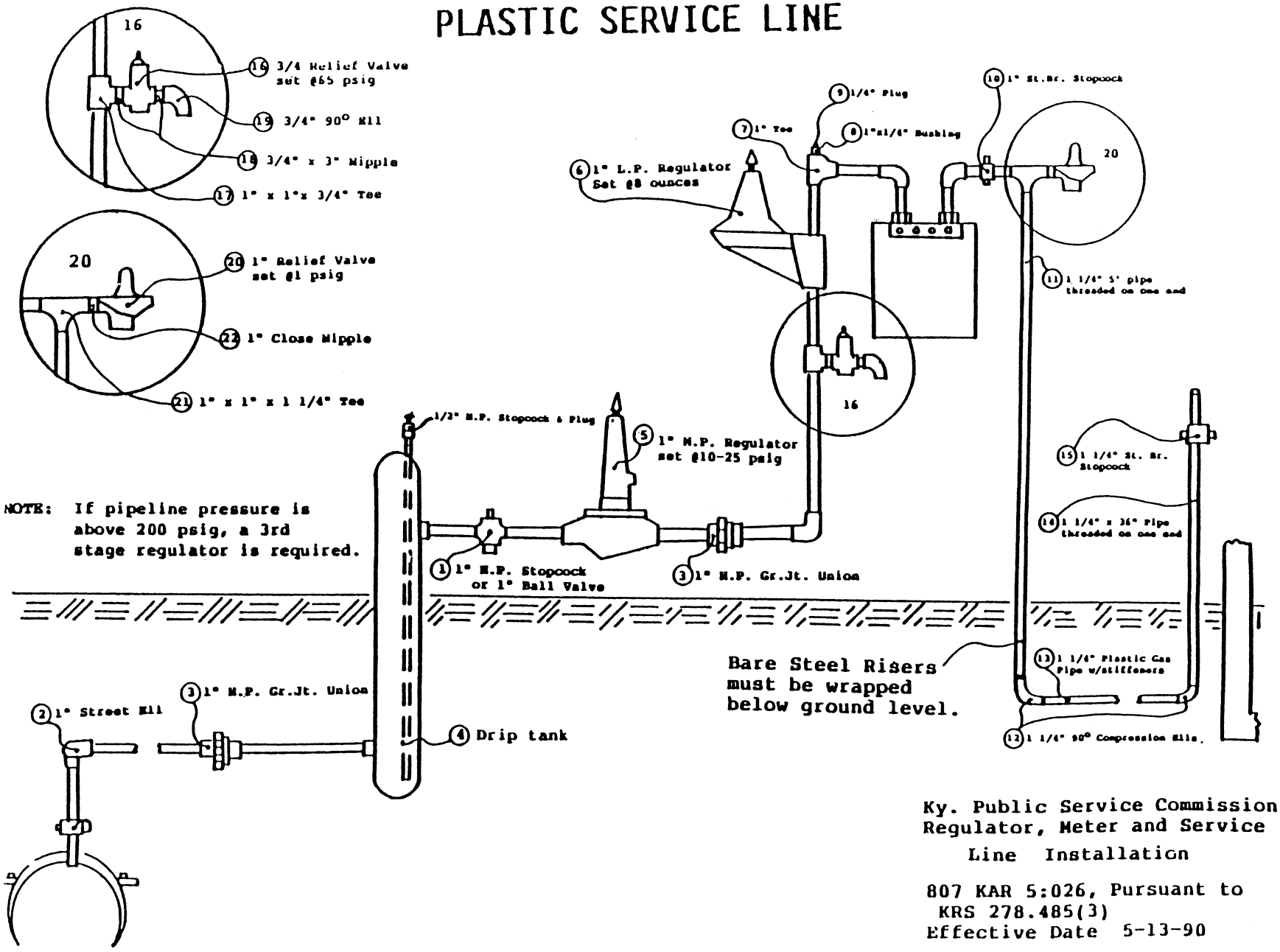
Other parts needed for assembly

6 – 1" x 3" nipples, heavy black steel
5 – 1" x 6" nipples, heavy black steel
2 – 1" x 12" nipples, heavy black steel
2 – 1" x 2" nipples, heavy black steel
4 – 1" 90° ells, heavy black steel

Relief Valve Assembly List if Regulators
Are Not Equipped With Internal Relief Capabilities

16.	¾" pressure relief valve, spring loaded, set to relieve at 65 psig
17.	1 – 1" x ¾" tee, heavy black steel
18.	2 – ¾" x 3" nipple, heavy black steel
19.	1 – ¾" 90° ell, heavy black steel with bug screen
20.	1" pressure relief valve, spring loaded with screened vent, set to relieve at 1 psig
21.	1 – 1" x 1" x 1¼" tee, black steel
22.	1 – 1" close nipple, heavy black steel

PLASTIC SERVICE LINE



Ky. Public Service Commission
Regulator, Meter and Service Line Installation

807 KAR 5:026, Pursuant to KRS 278.485(3)
Effective Date 5-13-90

LIST OF MATERIALS FOR COATED STEEL SERVICE LINE

REQUIRED BY APPLICANT FOR GAS SERVICE UNDER KRS 278.485

Item	Description
1.	1 – 1" heavy brass stopcock, or 1" ball valve
2.	1 – 1" street ell, heavy black steel
3.	2 – 1" ground joint union, heavy black steel
4.	Drip tank, minimum test pressure 600 psig, includes 1/2" stopcock and plug
5.	1" medium pressure regulator, spring type, 200 psig inlet to 10-25 psig outlet, minimum working pressure 600 psig, internal relief capabilities optional
6.	1" low pressure regulator, spring type, 10-25 psig inlet to 8 oz. Outlet, minimum working pressure 100 psig, must be equipped with automatic cutoff and manual reset, internal relief capabilities optional
7.	1 – 1" tee, black steel
8.	1 – 1" x ¼" bushing, black steel
9.	1 – ¼" plug, black steel
10.	1 – 1" standard brass stopcock
11.	1 – 1¼" x 12"nipple, threaded on one end, new black steel
12.	1 – 1¼" insulating coupling
13.	1 – 1¼" x 40" pipe, threaded on one end, new black steel
14.	1 – 1¼" street ell, black steel
15.	1¼" coated steel pipe
16.	1¼" x 36" steel pipe, threaded on both ends
17.	1 – 1¼" standard brass stopcock
18.	1 – 1¼" standard ground joint insulating union, black steel

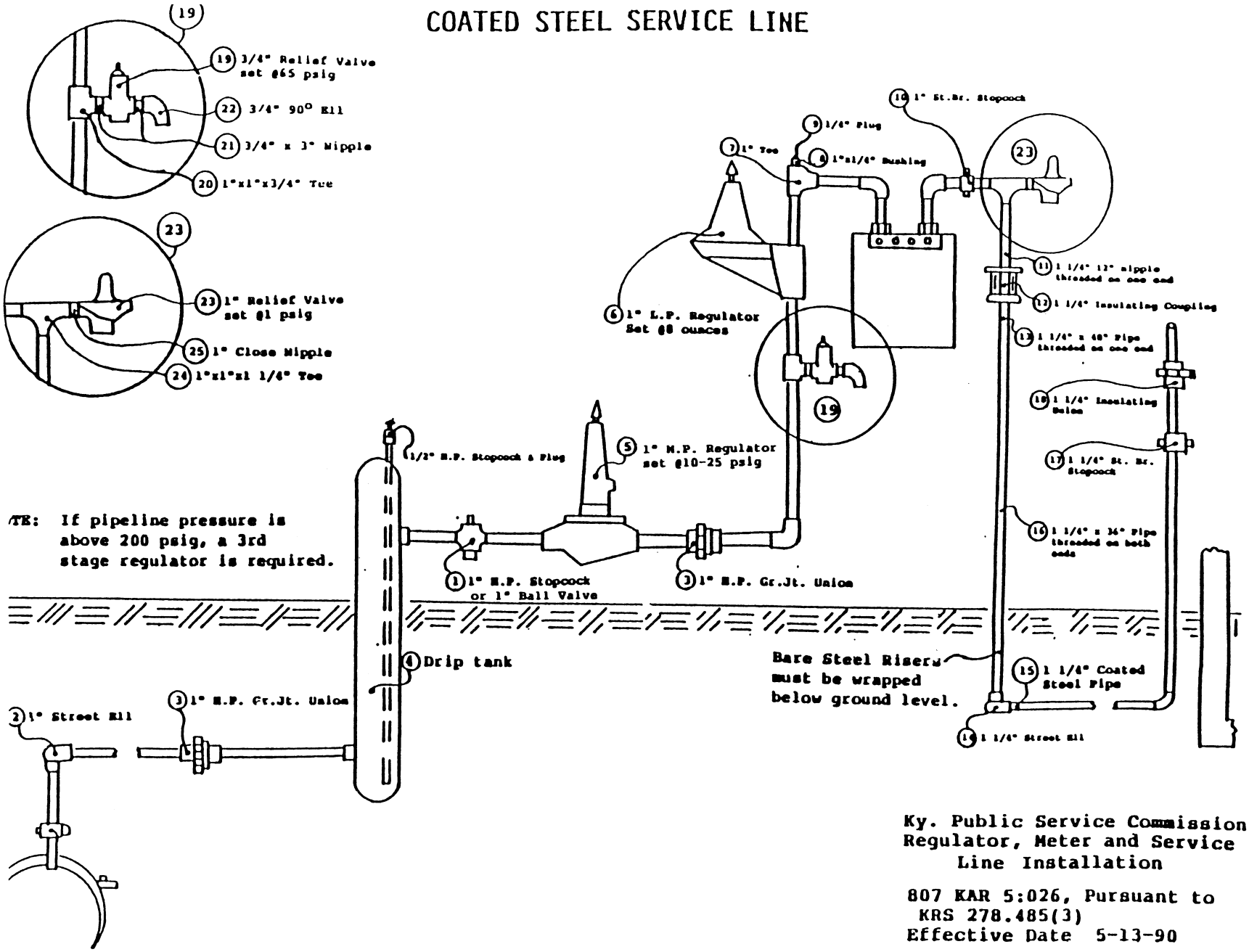
Other parts needed for assembly

6 – 1" x 3" nipples, heavy black steel
5 – 1" x 6" nipples, heavy black steel
2 – 1" x 12" nipples, heavy black steel
2 – 1" x 2" nipples, heavy black steel
4 – 1" 90° ells, heavy black steel
2 – 1¼" 90° ell, black steel

Relief Valve Assembly List if Regulators
Are Not Equipped With Internal Relief Capabilities

19.	¼" pressure relief valve, spring loaded, set to relieve at 65 psig
20.	1 – 1" x 1" x ¾" tee, heavy black steel
21.	2 – ¾" x 3" nipple, heavy black steel
22.	1 – ¾" 90° ell, heavy black steel with bug screen
23.	1" pressure relief valve, spring loaded with screened vent, set to relieve at 1 psig
24.	1 – 1" x 1" x 1¼" tee, black steel
25.	1 – 1" close nipple, heavy black steel

COATED STEEL SERVICE LINE



Ky. Public Service Commission
Regulator, Meter and Service Line Installation

807 KAR 5:026, Pursuant to KRS 278.485(3)
Effective Date 5-13-90

APPENDIX B

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Bond No. _____

COMMONWEALTH OF KENTUCKY
DEPARTMENT OF MINES AND MINERALS
DIVISION OF OIL AND GAS

BLANKET SURETY BOND
COVERING WELLS TO BE DRILLED, DEEPENED, RE-OPENED OR TEMPORARILY ABANDONED

KNOW ALL MEN BY THESE PRESENTS:

That we _____
_____, as principal
and _____
a corporation, as surety, authorized to do business in this Commonwealth, are held and firmly bound unto the Commonwealth of Kentucky, Department of Mines and Minerals, in the penal sum of $_____ lawful money of the United States, for which payment, well and truly made, we jointly and severally bind ourselves, our personal representatives, our heirs, executors, administrators or successors, and assigns.

The condition of this obligation is such that whereas the above bounden principal proposes to drill, deepen, reopen or temporarily abandon wells in this Commonwealth; under the provisions of KRS Chapter 353; if the above bounden principal shall comply with the laws of this Commonwealth and the rules, regulations and orders of the Department of Mines and Minerals, with reference to the proper plugging of said wells, and filing with the Department all records required by the Department, in the event that said wells do not produce oil or gas in commercial quantities, or cease to produce oil or gas in commercial quantities, then this obligation is void; otherwise, the same shall be and remain in full force and effect.

The duration of this bond shall be from the time filed with the Department until the Director of Oil and Gas Conservation, upon being satisfied that the owner or operator has plugged the wells in accordance with the law and the rules and regulations of the Department of Mines and Minerals, and that all logs, plugging affidavits, or other pertinent information required by KRS Chapter 353 and the rules and regulations and orders of the Department have been filed, releases the bond.

IN WITNESS WHEREOF, we have hereunto set our hands and affixed our seals this _____ day of _____, 19_____.

_____
Principal

_____
Surety

by _____

(When principal or surety executes this bond by agent, power of attorney or other, evidence of such authority must be attached).

Bond No. _____

COMMONWEALTH OF KENTUCKY
DEPARTMENT OF MINES AND MINERALS
DIVISION OF OIL AND GAS

SURETY BOND
COVERING WELLS TO BE DRILLED, DEEPENED, RE-OPENED OR TEMPORARILY ABANDONED

KNOW ALL MEN BY THESE PRESENTS:

That we _____, as principal and _____ a corporation, as surety, authorized to do business in the Commonwealth, are held and firmly bound unto the Commonwealth of Kentucky, Department of Mines and Minerals, in the penal sum of $ _____ lawful money of the United States, for which payment, well and truly made, we jointly and severally bind ourselves, our personal representatives, our heirs, executors, administrators or successors, and assigns.

The conditions of this obligation is such that whereas the above bounden principal proposes to:
Carter Coordinates _____ FNL/FSL _____ FEL/FWL Section _____ Letter _____ Number _____
Drill ( ) Deepen ( ) Reopen ( ) Temporarily Abandon ( ) a well in this Commonwealth known as the _____ (farm) No. _____ located in _____ County; under the provisions of KRS Chapter 353; if the above bounden principal shall comply with the laws of this Commonwealth and the rules, regulations and orders of the Department of Mines and Minerals, with reference to the proper plugging of said well, and filing with the Department all records required by the Department, in the event that said well does not produce oil or gas in commercial quantities, or cease to produce oil or gas in commercial quantities, then this obligation is void; otherwise, the same shall be and remain in full force and effect.

The duration of this bond shall be from the time filed with the Department until the Director of Oil and Gas Conservation, upon being satisfied that the owner or operator has plugged the well in accordance with the law and the rules and regulations of the Department of Mines and Minerals, and that all logs, plugging affidavits, or other pertinent information required by KRS Chapter 353 and the rules and regulations and orders of the Department have been filed, releases the bond.

IN WITNESS WHEREOF, we have hereunto set our hands and affixed our seals this _____ day of _____, 19 _____.

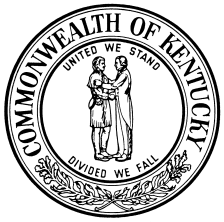
When bond is released,
return to:

_____
_____
_____

_____
Principal

_____
Surety
by _____

(When principal or surety executes this bond by agent power of attorney or other evidence of such authority must be attached.)



COMMONWEALTH OF KENTUCKY
DEPARTMENT OF MINES AND MINERALS
DIVISION OF OIL AND GAS
PO BOX 2244
FRANKFORT, KY 40601

ISSUER
_____ NAME
_____ ADDRESS
_____
_____ PHONE
_____ CONTACT

IN REFERENCE TO:

LETTER OF CREDIT NUMBER _____
DATED _____
AMOUNT _____
ISSUED BY _____
ACCOUNTANT PARTY-OPERATOR _____

WE ENCLOSE THE ORIGINAL OF THE ABOVE-REFERENCED LETTER OF CREDIT OPENED IN YOUR FAVOR.

WE CONFIRM THE CREDIT AND HEREBY UNDERTAKE THAT ALL DRAFT(S) OR OTHER DEMANDS DRAWN IN COMPLIANCE WITH TERMS OF THE ORIGINAL CREDIT AND ANY OTHER CONDITIONS STATED THEREIN, SHALL BE HONORED.

BY: _____
TITLE: _____

ED-16 (REV.2-99)

COMMONWEALTH OF KENTUCKY
DEPARTMENT OF MINES AND MINERALS
DIVISION OF OIL AND GAS
P. O. BOX 2244
FRANKFORT, KY 40601

IRREVOCABLE LETTER OF CREDIT NO.:_____
DATE: _____

Dear Department:

We hereby open our irrevocable letter of credit in your favor for the account of _____ _____as operator , to cover wells drilled, deepened, reopened or transferred to the above- named principal, for the sum of _____dollars ($ _____) available by your draft or other demand on us at sight.

This letter of credit constitutes collateral security for performance of the above-named operator's obligations under KRS 353.590.

This Letter of Credit shall be subject to terms contained herein and shall cover all wells as security until plugged with the Department's approval and all records required by the Department are properly filed or all wells covered by this letter as security are transferred to a successor operator with bond as provided in KRS 353.590 or the operator posts a substitute bond to replace this letter of credit subject to the Department's approval.

All drafts drawn under this Letter of Credit are to be endorsed thereon and shall bear the clause "Drawn under _____ Letter of Credit No._____." This Letter of Credit is effective as of _____ and shall expire on _____ but such expiration date shall be automatically extended for a period of one year and each successive expiration date, unless at least 120 days before the current expiration date, we notify both you and the operator by certified mail that we have decided not to extend this Letter of Credit beyond the current expiration date. In the event you are so notified, any unused portion of the credit shall be available upon presentation of your sight draft for 120 days after the date of receipt by you as shown on the signed return receipt.

We hereby agree with you that all drafts drawn under and in compliance with the terms of this Letter of Credit shall be duly honored upon presentation to us, and we shall remit the amount of the draft by certified check payable to the "Kentucky State Treasurer" in accordance with your instructions.

We shall give notice within fifteen (15) days to the operator and the Director, Division of Oil and Gas, of any notice received or action filed alleging our insolvency or bankruptcy, or alleging any violations of regulatory requirements which could result in suspension or revocation of our charter or license to do business.

Except as otherwise expressly stated herein, this Credit is subject to the uniform Customs and Practice for Documentary Credits (1983 Revision), International Chamber of Commerce, Publication no. 400.

Yours very truly,

_____
Authorized Signature Title

Form ED-16

VERIFICATION OF CERTIFICATE OF DEPOSIT

State Form

SEND TO: DEPARTMENT OF MINES AND MINERALS
DIVISION OF OIL AND GAS
PO BOX 2244
FRANKFORT, KY 40601

Gentlemen:

This is to advise you that the undersigned, pursuant to obligations set forth in KRS 353.590, does hereby assign, transfer to and pledge with the Department of Mines and Minerals all right, title and interest of the undersigned in and to the Certificate of Deposit issued by or carried with

Bank Name	
Address	
City and State	Zip Code

and identified as Certificate of Deposit # _____, in the face amount of $ _____, except that interest on the certificate is the property of the assignor.

This assignment constitutes collateral security for performance of the assignor's obligations under KRS 353.590.

The undersigned appoints the Director for the Division of Oil and Gas, Department of Mines and Minerals as the true and lawful attorney of the undersigned to demand, collect, and receive all amounts, excluding interest, which shall become due under the certificate of deposit and to endorse the certificate of deposit for payment or negotiation and to endorse any commercial paper given in payment of the certificate of deposit. The Director may permit automatic renewal of the certificate of deposit on any maturity date.

The undersigned warrants that the Certificate of Deposit is contemporaneously with the execution hereof being delivered to the Director; that the Certificate of Deposit is genuine and is in all respects what it purports to be; that the undersigned is the owner thereof free and clear of all liens and encumbrances; and that the undersigned has full power, right and authority to execute and deliver this assignment.

Signature	Date Signed	If Corporation, Title
Signature	Date Signed	If Corporation, Title

SIGNATURE GUARANTEE AND UNDERTAKING BY THE FINANCIAL INSTITUTION

The signature(s) of the assignor(s) appearing above (were) made in the presence of the Undersigned Officer of the Financial Institution in the above collateral assignment and is (are) herewith guaranteed by it.

This institution shall save and hold harmless the Department of Mines and Minerals and the State of Kentucky from all loss, claims, and litigation which it may suffer in consequence of its action in reliance upon and pursuant to the above assignment.

Financial Institution	By
Title	Date Signed

The Director of the Division of Oil and Gas, Department of Mines and Minerals herewith acknowledges receipt of the above assignment and agrees to act thereunder.

Director, Division of Oil and Gas, Department of Mines and Minerals	Date Signed

ED-20 (REV. 2-99)

COMMONWEALTH OF KENTUCKY
DEPARTMENT OF MINES AND MINERALS
DIVISION OF OIL AND GAS
PO BOX 2244
FRANKFORT, KY 40601
PHONE (502) 573-0147

Casing and Cementing
Plan as Required for
Permit per 805 KAR 1:130
and 805 KAR 1:140

WELL OPERATOR (APPLICANT) _____
(MUST BE IDENTICAL TO NAME ON BOND)

MINERAL OWNER (LESSOR) _____

COUNTY _____ WELL NUMBER _____ ELEVATION _____

CARTER COORDINATES _____ FNL FSL _____ FEL FWL, SEC._____ LETTER_____ NUMBER_____

CASING INFORMATION

TYPE	OD SIZE	WT/FT GRADE NEW OR USED	DEPTH

CEMENT INFORMATION

CASING	HOLE SIZE	SACKS	CLASS	WEIGHT	ADDITIVES

BLOW-OUT PREVENTER INFORMATION

BRAND	TYPE	WORKING PRESSURE	TEST PRESSURE

SCHEMATIC SHOWING HOLE SIZE & DEPTH OF EACH CASING STRING

I CERTIFY THAT THE ABOVE INFORMATION IS TRUE, ACCURATE AND COMPLETE TO THE BEST OF MY KNOWLEDGE.

OPERATOR _____ DATE SIGNED _____

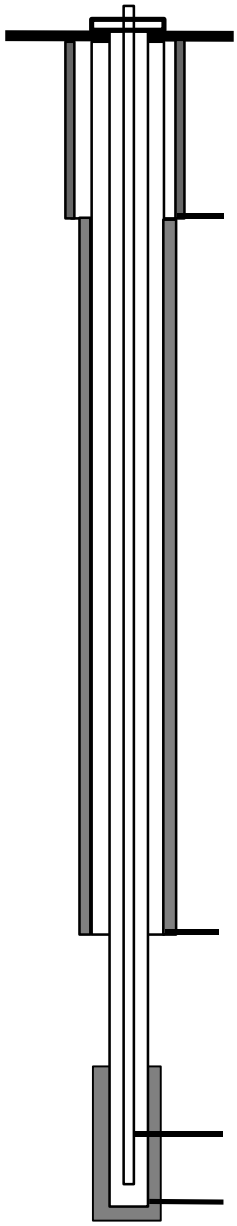
The Director of the Division of Oil and Gas, Department of Mines and Minerals, hereby approves of this Casing and Cementing Plan for the above-referenced location.

DIRECTOR _____ DATE SIGNED _____

Form ED-7 (ORG. 8-91) (REV. 2-99)

OIL & GAS WELL CEMENTING

Typical Wellbore (Not to Scale)



Surface Casing String - Set through fresh water zones and coal seams.
9 5/8" Casing (32.3 LB/FT) Length-250 FT.-Hole Size 12 ¼"
Cement to Surface: 250 X .3132 cu.ft./ft.=78.3 cu.ft.
***Convert Cubic Feet to Sacks:** 78.3 cu.ft./1.18 cu.ft./sack=66.367 sacks
Convert Cubic Feet to Barrels: 78.3 X .1781=13.9 Barrels

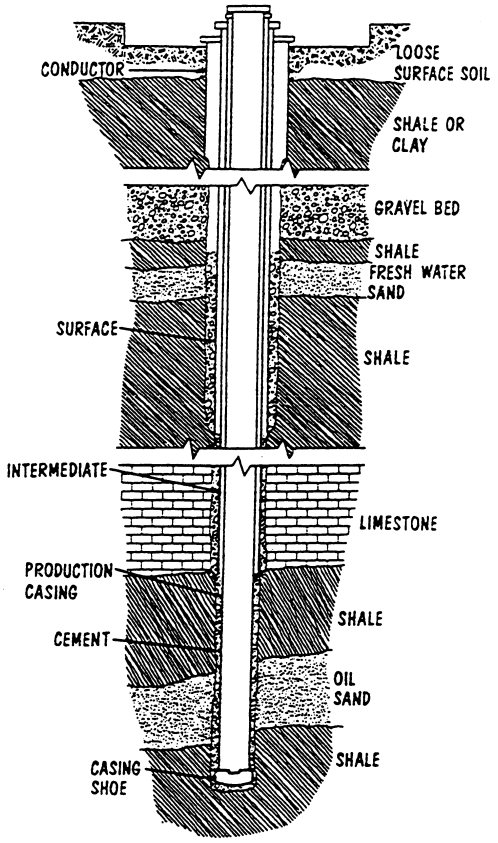
Intermediate Casing String - Set to isolate water and shallow producing zones.
7" Casing (20 LB/FT) Length-1800 FT.-Hole Size 8 ¾"
Cement back to base of 9 5/8": 1800'-250'=1550' 1550 X .1783 cu.ft./ft.=276 cu.ft.
***Convert Cubic Feet to Sacks:** 276 cu.ft./1.18 cu.ft./sack=233.94 sacks
Convert Cubic Feet to Barrels: 276 X .1781=49.16 Barrels

2 3/8" Production Tubing

Production Casing String - Set through producing zone and perforated.
4 ½" Casing (10.5 LB/FT) Length-3750 FT.-Hole Size 6 ¼"
Cement up to 2800': 3750'-2800'=950' 950 X .1026 cu.ft./ft.=97.47 cu.ft.
***Convert Cubic Feet to Sacks:** 97.47 cu.ft./1.18 cu.ft./sack=82.6 sacks
Convert Cubic Feet to Barrels: 97.47 X .1781=17.36 Barrels

* To convert cubic feet to sacks divide cement yield into cubic feet. To calculate sacks the cement blend, weight, yield, and water is required (supplied by cementing service company). Class A Cement w/3% $CaCl_2$ has a yield of 1.18 cu.ft./sack.
NOTE: Data for annular volume between casing and/or open hole is required for cement calculations and is found in oilfield cementing handbook. Contact cementing service company to obtain handbook.

Represents cement in annular space between casing and open hole.



—Types of casing.

OIL & GAS WELL CASING INFORMATION

-Types and functions of casing strings used in wells

Type of Casing	*Sizes*	*Function*
Conductor *Cement-* API Class A-C-G or H with accelerator	Ranges from 16- to 30- inch. driven or set from 40 to 1500 foot depths	1. Stabilized cellar and protects rig foundation 2. Restrains unconsolidated formations 3. Confines circulating fluids 4. Helps prevent water flows and loss of circulation
Surface Same as Conductor	Ranges from 7- to 16-inch, set from few feet to 4500 foot depths	1. Helps prevent contamination of fresh-water zones 2. Connection for blow-out preventer and well head 3. Support for deeper casing and tubing string 4. Confines shallow zones and helps prevent loss of circulation
Intermediate *Cement-* API Class A-C-G or H containing bentonite Lower casing with high strength cement	Ranges from 7- to 11 ¾ inch.	1. Helps prevent hole sloughing or enlargement while drilling deeper 2. Protects production strings from corrosion 3. Confines well if mud weight becomes inadequate to restrain high formation pressure 4. Protects loss of drill string in key seat or “sticky” holes 5. Helps prevent loss of circulation.
Production *Cement-* Designed for weight control (hydrostatic). Lower casing with high strength cement	Ranges from $2\ ^{3}/_{8}$ inch to $9\ ^{5}/_{8}$ inch and extends through zone of production	1. Protects hole during life of well 2. Isolates and helps prevent fluid migration 3. Helps provide well control should tubing fail 4. Protects downhole equipment 5. Allows selective production of oil or gas.
Liner Same as production casing	5- to 7-inch are most common sizes; extends through productive zones	1. Same as for production casing 2. Limits need for running full string of casing

COMMONWEALTH OF KENTUCKY
DEPARTMENT OF MINES AND MINERALS
DIVISION OF OIL & GAS
P O BOX 2244
FRANKFORT, KY 40601
PHONE – (502) 573-0147

APPLICATION FOR PERMIT

FOR OFFICE USE ONLY
RECORD NO:_____
FEE:_____
BOND:_____
PLAT:_____
FWD:_____
SAMPLES:_____
PERMIT NO:_____
RESTRICTED AREA:_____

TYPE OR PRINT

1. TO DRILL ☐ , DEEPEN ☐ _____ (PREVIOUS PERMIT NO.), REOPEN ☐ _____ (PREVIOUS PERMIT NO.), A WELL

2. WELL OPERATOR (APPLICANT)_____
(MUST BE IDENTICAL TO NAME ON BOND)

3. PERMANENT ADDRESS_____ (STREET CITY STATE) ZIP_____ PHONE_____

4. ADDRESS FOR MAILING PERMIT_____

5. MINERAL OWNER (LESSOR)_____
(ATTACH ADDITIONAL SHEETS AS NEEDED)

ADDRESS:_____ZIP_____PHONE_____

COUNTY_____ WELL NUMBER_____LEASE EXPIRATION DATE_____

6. CARTER COORDINATES_____FSL (FNL),_____FWL (FEL), SEC_____LETTER_____NUMBER_____

7. ELEVATION BEFORE GRADING_____ELEVATION AFTER GRADING IF DIFFERENT_____

ELEVATION CHANGES MUST BE FILED WITH THIS OFFICE PRIOR TO PLUGGING THE WELL.

8. NAME OF DEEPEST GEOLOGIC FORMATION TO BE TESTED _____max depth to permit_____

9. THIS PROPOSED WELL IS TO BE DRILLED FOR THE FOLLOWING PURPOSE

A. OIL - PRIMARY ☐	D. WATER SUPPLY ☐	G. SALT WATER DISPOSAL ☐
B. GAS - PRIMARY ☐	E. ENHANCED RECOVERY INJECTION ☐	H. STRATIGRAPHIC TEST ☐
C. GAS STORAGE ☐	F. ENHANCED RECOVERY PRODUCTION ☐	I. OBSERVATION ☐

10. A. IS THIS WELL TO BE COMPLETED IN A RESERVOIR WHICH HAD INJECTION WELLS IN EXISTENCE PRIOR TO THE EFFECTIVE DATE OF 805 KAR 1: 1 1 0. YES ☐ NO ☐

B. THE OPERATOR OF A PROPOSED INJECTION WELL MUST OBTAIN A PERMIT TO DRILL (THIS APPLICATION) AND A SEPARATE PERMIT TO INJECT. THE PERMIT TO INJECT SHALL SATISFY THE REQUIREMENTS OF 805 KAR 1:110.

11. WILL THIS WELL PENETRATE COAL BEARING STRATA? YES ☐ NO ☐ IF YES, COMPLETE BOX BELOW

12. IS THE COAL OWNED, OPERATED OR LEASED BY ANY PERSON OTHER THAN THE OIL OR GAS LESSEE OR LESSOR? YES ☐ NO ☐

COAL OWNER AND ADDRESS:_____

THE UNDERSIGNED APPLICANT HAS SENT A COPY OF THIS APPLICATION AND THE WELL LOCATION PLAT BY REGISTERED OR CERTIFIED MAIL TO ALL COAL OWNERS AND OPERATORS NAMED HEREIN ON THE SAME DATE THAT THIS APPLICATION WAS MAILED TO THE DEPARTMENT.

13. WILL THIS WELL BE DRILLED WITHIN THE AREA OF A GAS STORAGE FIELD AS DEFINED BY THE DIVISION OF OIL AND GAS REGULATION 805 KAR 1:080? YES ☐ NO ☐

GAS STORAGE OPERATOR AND ADDRESS: _____

THE UNDERSIGNED APPLICANT HAS SENT A COPY OF THIS APPLICATION AND THE WELL LOCATION PLAT BY REGISTERED OR CERTIFIED MAIL TO THE GAS STORAGE OPERATOR NAMED HEREIN ON THE SAME DATE THAT THIS APPLICATION WAS MAILED TO THE DEPARTMENT.

14. SURFACE OWNER_____ ADDRESS_____
(IF DIFFERENT FROM MINERAL OWNER)

15. SURFACE OWNERS NOTIFICATION OF INTENT TO DRILL.
METHOD OF NOTIFICATION: ☐ CERTIFIED MAIL (COPY OF LETTER AND RETURN RECEIPT ATTACHED)
☐ PERSONAL DELIVERY (DATE_____)(COPY OF NOTIFICATION ATTACHED)

16. DRILLING CONTRACTOR_____
ADDRESS_____
PHONE NUMBER_____

17. U.S.G.S. QUADRANGLE_____
(NAME MAP DATE)

FORM ED-1 (REV. 2-99)

OVER

18. IS THIS PROPOSED WELL LOCATED ON, OR WILL IT BE NECESSARY TO CROSS LAND WHICH IS CURRENTLY UNDER PERMIT OR BOND BY A COAL OPERATOR AS REQUIRED BY KRS CHAPTER 350 ? YES ☐ NO ☐
IF YES, LIST THE NAME AND ADDRESS OF CURRENT BONDED OPERATOR _____

_____

_____

HAS THE APPLICANT MET AND CONFERRED WITH, OR OFFERED TO MEET AND CONFER WITH THE BONDED OPERATOR? YES ☐ NO ☐

19. IS THIS PROPOSED WELL A POOLED OR UNITIZED WELL? YES ☐ NO ☐

IF YES, BY WHAT AUTHORITY DOES THE APPLICANT HAVE TO POOL OR UNITIZED THIS PROPOSED WELL?

_____

_____

_____

20. IS THIS PROPOSED WELL A TWIN WELL TO AN EXISTING WELL OR WELLS YES ☐ NO ☐

IF YES, WHAT IS THE PERMIT NUMBER(S) FOR THE EXISTING WELL(S)?_____

WHAT IS THE PRODUCING FORMATION AND INTERVAL OF THE EXISTING WELL(S)?_____

_____

DESCRIBE THE MEASURES TO BE TAKEN TO ENSURE THAT THE TWIN WELLS WILL NOT PRODUCE FROM THE SAME

RESERVOIR_____

_____

_____

_____

21. IS THIS PROPOSED WELL A HORIZONTAL OR DEVIATED WELL? YES ☐ NO ☐
IF YES, INDICATE THE LOCATION OF THE ENDPOINT OF THE WELLBORE BELOW.

CARTER COORDINATES _____FNL_____FSL, _____FEL_____FWL , SEC. _____ LETTER_____, NUMBER_____

WHAT IS THE ESTIMATED TOTAL LENGTH OF THE WELLBORE?_____

22. IF A CORPORATION, INDICATE STATE OF INCORPORATION_____

IS CORPORATION REGISTERED WITH KENTUCKY SECRETARY OF STATE? YES ☐ NO ☐

23. **THE UNDERSIGNED HEREBY SWEARS OR AFFIRMS THAT THE FOREGOING FACTS GIVEN IN THIS APPLICATION ARE TRUE AS THEREIN SET FORTH**.

DATED THIS _____DAY OF _____A.D. 19_____

24. **THE APPLICANT ACKNOWLEDGES THAT OTHER LOCAL, STATE AND FEDERAL LAWS MAY APPLY TO A WELL DRILLED AT THIS LOCATION**.

25. **IF A CORPORATION, SIGNATORY MUST BE AN OFFICER OF THE COMPANY OR PROVIDE POWER OF ATTORNEY TO EXECUTE DOCUMENTS.**

IF A PRIVATE INDIVIDUAL, SIGNATORY MUST BE SAME OR PROVIDE POWER OF ATTORNEY TO EXECUTE DOCUMENTS.

_____
SIGNATURE OF APPLICANT TITLE

_____
PRINT or TYPE NAME OF APPLICANT

SWORN TO AND SUBSCRIBED BEFORE ME THIS_____DAY OF_____19_____

_____
NOTARY PUBLIC

MY COMMISSION EXPIRES:_____

26. **ALL APPLICATIONS MUST BE NOTARIZED. FILE THIS APPLICATION ALONG WITH A PERMIT FEE OF $300.00 AND ONE (1) ORIGINAL AND TWO (2) COPIES OF THE WELL LOCATION PLAT. ALL BLANKS MUST BE COMPLETED. INCOMPLETE APPLICATIONS WILL BE REJECTED**.

COMMONWEALTH OF KENTUCKY
DEPARTMENT OF MINES AND MINERALS
DIVISION OF OIL AND GAS
P. O. BOX 2244
FRANKFORT, KY 40601
PHONE (502) 573-0147

PLAN TO PREVENT EROSION OF AND SEDIMENTATION FROM A WELL SITE

Operator Name _____ County _____
Surface Owner Name,
Address and Phone No. _____
_____
_____

Well No. _____

A narrative description of the location of all areas to be disturbed, including the location of roads, gathering lines, the well site, tanks and other storage facilities:
(Must be typed)

Describe steps to be taken to prevent erosion of and sedimentation from the well site and all disturbed areas, including roads:
(Must be typed)

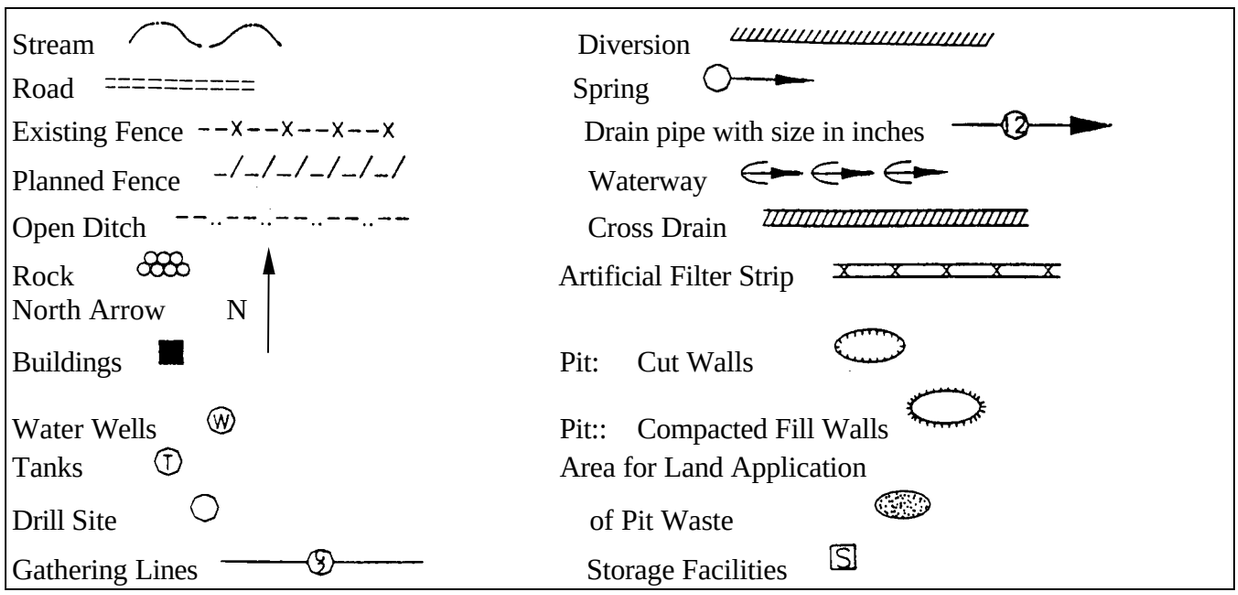
Proposed Revegetation Treatment:

	Fertilizer and Soil Amendments	Seed or Trees Planted (Type and Amount/Acre)
Area I		
Area II		

Additional sheets may be attached for your convenience.

Attach: Drawing(s) of the road, well location and proposed area involved, drawn over an enlarged section of the U.S.G.S. 1=24,000 topographic map (enlarged to approximately 1"=400') on an 8 X 14 sheet of paper using the applicable symbols from the following legend:

LEGEND



The undersigned hereby swears or affirms that the foregoing information and attachments in this plan to prevent erosion of and sedimentation from the well site and all disturbed areas, including roads, are true to the best of my knowledge and belief.

Dated this _____ day of _____, 19 _____.

If a corporation, signatory shall be an officer of the company or provide Power of Attorney to execute documents. If a private individual, signatory shall be the same as the applicant or provide Power of Attorney to execute documents.

_____ _____
Signature of operator Title

_____
Print or Type Name

Sworn to and subscribed before me this _____ day of _____, 19 _____.

_____
Notary Public

My Commission Expires: _____

Surface Owner Agreement

(Surface Owner Signature Below, Shall Be Notarized)

I have reviewed the application and the information submitted with this form, and agree to the well operator's operations and reclamation proposal as set forth herein. I understand that the execution of this document in no way affects compensation for surface damages as described in KRS 353.595(6) or other contractual agreement.

_____ _____
Signature of severed mineral surface owner Date

_____
Print or type name of severed mineral surface owner

Sworn to and subscribed before me this _____day of _____, 19 _____.

_____
Notary Public

My Commission Expires: _____

COMMONWEALTH OF KENTUCKY
NATURAL RESOURCES & ENVIRONMENTAL PROTECTION CABINET
DEPARTMENT FOR ENVIRONMENTAL PROTECTION
DIVISION OF WATER

APPLICATION FOR PERMIT TO CONSTRUCT ACROSS OR ALONG A STREAM

Chapter 151 of the Kentucky Revised Statutes requires approval from the Division of Water prior to any construction or other activity in or along a stream that could in any way obstruct flood flows.

1. **OWNER:** _____
   Give name of person(s), company, governmental unit, or other owner of proposed project.
   MAILING ADDRESS: _____
   _____
   _____
   TELEPHONE: _____

2. **AGENT:** _____
   Give name of person(s) submitting application, if other than owner.
   ADDRESS: _____
   _____
   _____
   TELEPHONE: _____

3. **ENGINEER:** _____
   P.E. NUMBER: _____

4. **DESCRIPTION OF CONSTRUCTION:** _____
   Give specifications and type of the proposed construction and tell purpose of the project.
   _____
   _____
   _____
   _____
   _____
   _____
   _____
   _____
   _____

5. **LOCATION OF CONSTRUCTION:** _____
   Give county name, directions from nearest town, stream name and mile, latitude, longitude, etc.
   _____
   _____
   _____
   _____
   _____
   _____
   _____

6. ESTIMATED BEGIN CONSTRUCTION DATE: _____

7. ESTIMATED END CONSTRUCTION DATE: _____

8. THE APPLICANT *MUST* ADDRESS PUBLIC NOTICE.

(a) PUBLIC NOTICE HAS BEEN GIVEN FOR THIS PROPOSAL BY THE FOLLOWING MEANS:

___ PUBLIC NOTICE IN NEWSPAPER HAVING GREATEST CIRCULATION IN AREA (provide copy)

___ PROPERTY OWNER AFFIDAVITS (contact Division of Water for requirements)

(b) ___ I REQUEST WAIVER OF PUBLIC NOTICE BECAUSE (contact Division of Water for requirements):

_____

_____

9. I HAVE CONTACTED THE FOLLOWING CITY OR COUNTY OFFICIALS CONCERNING THIS PROJECT (Give name and title of person(s) contacted and provide copy of any approval city or county may have issued):

_____

_____

10. LIST OF ATTACHMENTS: _____

List plans, profiles, or other drawings and data submitted. A map should always be provided.

_____

_____

_____

11. I CERTIFY THAT THE "OWNER" OWNS OR HAS EASEMENT RIGHTS ON ALL PROPERTY ON WHICH THIS PROJECT WILL BE LOCATED OR ON WHICH RELATED CONSTRUCTION WILL OCCUR (including, for dams, the area that would be impounded during the design flood): _____ (Initial here).

12. REMARKS: _____

_____

_____

_____

I hereby request approval for construction across or along a stream as described in this application and any accompanying documents. To the best of my knowledge, all of the information provided is true and correct.

Signature: _____

Owner or Agent sign here (Agent should provide copy of Power of Attorney)

Date: _____

SUBMIT APPLICATION AND ATTACHMENTS TO:

Division of Water
Water Resources Branch
Floodplain Management Section
14 Reilly Road
Frankfort, Kentucky 40601

Rev. 8/96 dms

Commonwealth of Kentucky
NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION CABINET
Department for Environmental Protection
Division of Water

INSTRUCTIONS TO APPLICANTS FOR APPROVAL OF CONSTRUCTION IN A FLOODPLAIN

Chapter 151 of the Kentucky Revised Statutes and related regulations require approval by the Natural Resources and Environmental Protection Cabinet prior to the construction or reconstruction of any dam, embankment, levee, dike, bridge, fill or other obstruction in the floodplain of any stream in the Commonwealth. In order to comply with this statute, anyone who proposes such an activity ***must submit to this Cabinet an application and one (1) set of such plans, drawings, and specifications as are necessary*** for a determination of the proposed project's compliance with state laws and regulations and of the effects of the project on the floodway and the flooding of the stream. The application and other information shall be sent to:

Floodplain Management Section
Division of Water
14 Reilly Road
Frankfort, Kentucky 40601
Telephone: (502) 564-3410

The applicant is responsible for proper design, engineering and construction of the proposed project. The Cabinet's approval of the plans does not relieve the applicant from any liability related to construction, operation, or maintenance of the project.

Each application shall be made on the standard form available from, and in the manner specified by, the Cabinet's Division of Water. [NOTE: The application shall not be considered complete until all information required by the Division has been properly submitted.] The application shall be made in the name of the owner, but may be submitted by an authorized agent of the owner. (If submitted by the agent, a Power of Attorney or other authorization by the owner should be included with the application.) The owner must own or have easement or other rights to all property on which the project is to be located, including all areas that are to be entered onto or disturbed by the construction process (for dams, this applies also to the area that would be inundated during an occurrence of the appropriate design flood). KRS 151.260 requires that all plans and specifications submitted with the application be ***prepared by a professional engineer licensed to practice in Kentucky unless this requirement is waived by the Division.*** In order to facilitate handling and storage, the information accompanying the application should be on ***standard size sheets between 8 X 10 inches and 17 X 22 inches (24 X 36 inches for dams).*** The following listing identifies the types of information generally required for the Division's analysis. In some cases additional information as specified by the Division may be required.

1. **General:** All plans submitted must prominently display at least the following information regarding the proposed project: Name of the project, date, scale, name of stream, direction of flow, purpose and intended use, scheduling of activities, and location. Photographs of the proposed construction site looking both upstream and downstream at each cross-section and other points of interest are generally useful and may be required. All elevations shall be given with respect to mean sea level. Also, a north arrow shall be provided where applicable. A public notice will be required unless waived by the Division, see Section #9 on the following Page.

2. **Bridges or Fills:** A properly completed Stream Construction Permit Application Data Sheet; a map showing the location of the proposed project and showing the stream far enough upstream and downstream to determine the approach and discharge flow conditions above and below the site (500 feet minimum); a section of USGS quadrangle map indicating general location of the project; the drainage area and the method of determining the design flow; the ***finished floor elevations of all houses located within 1000 feet of the project***; field-surveyed cross-sections (referenced to MSL) of the stream at the site of the project showing conditions both before and after construction and extended to at least the elevation of the extreme flood of record plus three feet, preferably at intervals of not more than one hundred (100) feet; additional cross-sections every one hundred (100) feet for five hundred (500) feet upstream and downstream–the final required number and spacing of cross-sections shall be based on whatever is necessary to determine the effects of the proposed construction on the flow and flooding of the stream, but in general no fewer than four sections shall be provided in each direction. Cross-sections shall be presented with left and right appearing as they would for an observer looking downstream. See typical cross-section detail requirements below.

3. **Dams:** A properly completed Dam Construction Permit Application Data Sheet; the project location (provide portion of USGS quadrangle map); the hazard classification determined by the design engineer to be appropriate (justification for the classification may be required by Division of Water); plans and specifications of sufficient detail to show spillways and other hydraulic and structural features to afford a basis for judgement as to the safety of the structure. In the case of class "B" or class "C" dams (as defined by Division of Water regulations), the Division will require complete design plans in accordance with the minimum design criteria set forth in 401 KAR 4:030. (Copies of this regulation are available from the Division.) [**NOTE:** The owner must own or have adequate easement rights for the property on which the dam is to be constructed and on the entire reservoir area (up to the level of the appropriate design flood).]

4. **Channel Relocations:** A properly completed Stream Construction Permit Application Data Sheet; a project location map (preferably USGS quadrangle map); ***the finished floor elevations of all houses located within 1000 feet of the project;*** surveyed cross-sections referenced to mean sea level, of both proposed and existing channel with left and right appearing as they would for an observer looking downstream; the cross-sections should extend to at least the height of the extreme flood of record with sections taken at the upstream and downstream ends of the relocation, and sufficient sections taken in between to adequately portray changes in stream gradient and geometry, preferably at intervals of not more than one hundred (100) feet; no fewer than three cross-sections should be submitted; at least one cross-section should be submitted for the channel one hundred (100) feet downstream of the proposed relocation. See typical cross-section requirements in #8 below.

5. **Pipeline Stream Crossings (for crossings that are not covered under 401 KAR 4:050):** A properly completed Stream Construction Permit Application Data Sheet; a location map (preferably USGS); a profile along the pipe; the diameter of pipe; the material and the weight of pipe in pounds per linear foot, and the weight and type of anchorage; and all data requested under Bridges or Fills presented above.

6. **Aerial Crossings:** A properly completed Stream Construction Permit Application Data Sheet; a location map (preferably USGS); a profile along crossing showing supports, water surface elevation, and distance above water at closest point.

7. **Fixed Docks, Piers, Wharves, Water Intakes, etc:** A properly completed Stream Construction Permit Application Data Sheet; a location map (preferably USGS); the elevation of docks, top of structure, extreme high water, and normal pool; and the distance that the structure will project into stream.

8. **Cross-Section Requirements (see typical drawing):**

   (1) All cross-sections shall be obtained by field survey. All sections shall be taken perpendicular to stream flow presented with left and right appearing as they would for an observer looking downstream.

   (2) The horizontal scale shall be such that one inch (1") represents no more than two hundred feet (200'). The vertical scale shall be such that one inch (1") represents no more than twenty feet (20'). This requirement may be waived by the Division upon the request of the applicant if another scale is determined more appropriate.

   (3) The cross-sections shall be designated by horizontal stationing with station 0 + 00 designating the most downstream section, 1 + 00 indicating a section one hundred (100) feet upstream, and so on (see sketch representing typical plan view).

9. **Public Notice Information:**

As part of the stream construction permit issuance procedure, the applicant must provide notice to all parties who might be affected by the construction for which a permit has been requested. Public notice may be provided by either of the following methods:

(1) Publishing a notice in the newspaper or newspapers having greatest circulation in the area of the proposed construction. The notice shall provide at least (a) the name of the applicant, (b) the location, the nature and the extent of the proposed construction, and (c) a statement indicating that any comments and objections are to be directed to the Division of Water. The notice shall prominently display address and telephone number of the Division of Water's Floodplain Management Section, which are given at the beginning of these instructions. The notice shall run for a period of three (3) consecutive days or printings of the newspaper. However, if the newspaper is published weekly, two (2) consecutive printings may be allowed upon request of the applicant. Proof of public notice through the newspaper must be provided to the Division. The public notice shall be at least three column inches in size, but must in all cases be large enough that all of the information required is readable.

(2) Submitting affidavits from all parties who reside, own property, or have other legitimate property interests in the affected areas. The affidavit must contain a complete description of the proposed construction; a place for concerned parties to sign indicating that they have read the statement and that they understand that a permit application is being submitted or has been submitted to the Division; and the Division's address and telephone number with explanation that comments and objection are to be directed to this agency. All affidavits shall be submitted to the Division of Water, Water Resources Branch for review.

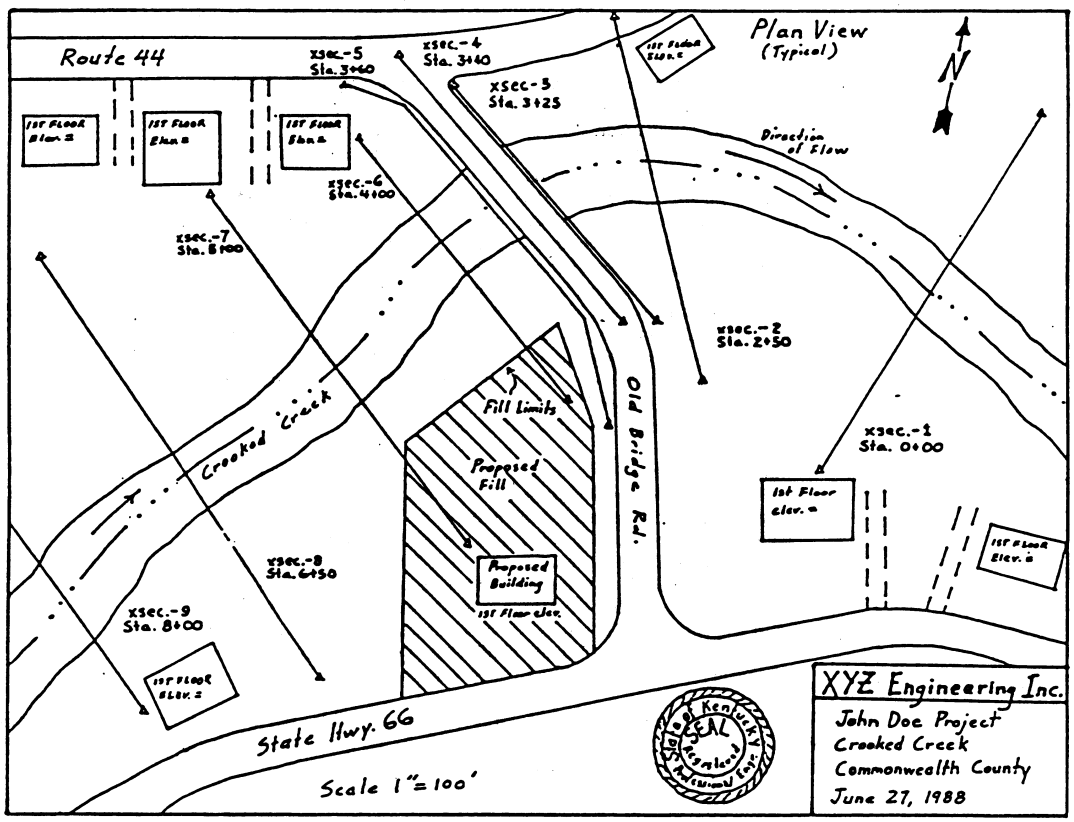
Under certain circumstances, where flooding impacts are negligible, the Division may waive the public notification requirement. If desired, the Division can provide more detailed information regarding the circumstances under which such a waiver might be issued.

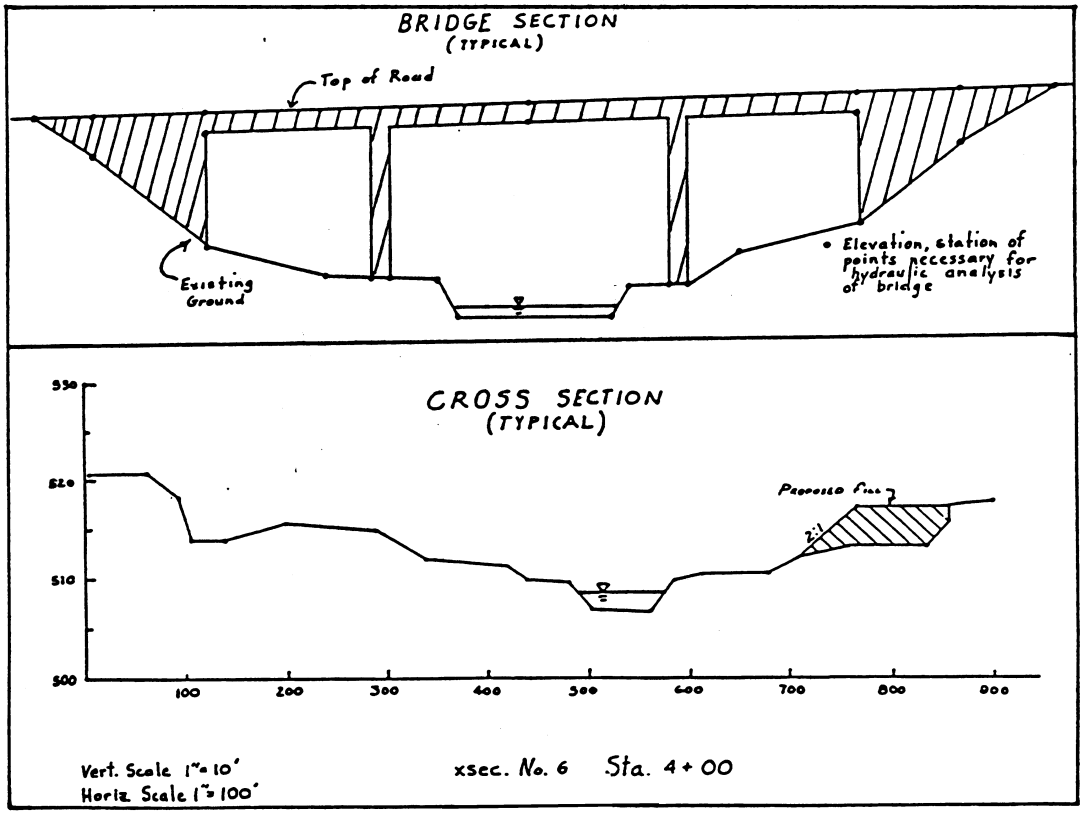
EXAMPLE OF PUBLIC NOTICE

——Public Notice——

Notice is hereby given that (NAME AND ADDRESS), has filed an application with the Natural Resources and Environmental Protection Cabinet to (BRIEF DESCRIPTION OF CONSTRUCTION). The property is located (LOCATION DESCRIPTION, INCLUDE MILES FROM NEAREST TOWN OR MAJOR ROAD INTERSECTION AND NAME OF STREAM). Any comments or objections concerning this application shall be directed to: Kentucky Division of Water, Water Resources Branch, 14 Reilly Road, Frankfort Office Park, Frankfort, Kentucky 40601. Phone: (502) 564-3410.

rev. 5/95
dms


Plan View
(Typical)
Route 44
xsec.-5
Sta. 3+60
xsec.-4
Sta. 3+40
xsec.-3
Sta. 3+25
xsec.-6
Sta. 4+00
xsec.-7
Sta. 5+00
xsec.-2
Sta. 2+50
xsec.-1
Sta. 0+00
xsec.-8
Sta. 6+50
xsec.-9
Sta. 8+00
Direction of Flow
Fill Limits
Proposed Fill
Proposed Building
Crooked Creek
Old Bridge Rd.
State Hwy. 66
Scale 1"= 100'
XYZ Engineering Inc.
John Doe Project
Crooked Creek
Commonwealth County
June 27, 1988


BRIDGE SECTION
(TYPICAL)
Top of Road
Existing Ground
• Elevation, station of points necessary for hydraulic analysis of bridge
CROSS SECTION
(TYPICAL)
530
520
510
500
100
200
300
400
500
600
700
800
900
Proposed Fill
2:1
Vert. Scale 1"= 10'
Horiz. Scale 1"= 100'
xsec. No. 6 Sta. 4+00

7088,REV.9/91

COMMONWEALTH OF KENTUCKY
NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION CABINET
Department for Environmental Protection
Division of Water
18 Reilly Road, Frankfort, Kentucky 40601

KENTUCKY WILD RIVERS PROGRAM
Change of Use Permit
APPLICATION

NAME OF WILD RIVER_____

A. APPLICANT INFORMATION

Name: _____

Address: _____

Telephone: _____

Does Applicant own fee title to property affected by the proposed land use change? _____yes _____no

Does Applicant own the mineral rights of the affected property? _____yes _____no

Does Applicant have a lease or contract authorizing the proposed land use change? _____yes _____no

Attach lease or contract to this application form.

B. LEASEE/OPERATOR INFORMATION (If different from Applicant)

Name_____

Address_____

City_____State_____

Zip Code_____Phone_____

C. LANDOWNER INFORMATION (If different from Applicant)

Name_____

Address_____

City_____State_____

Zip Code_____Phone_____

D. TYPE OF LAND USE CHANGE (check those which apply):

_____ Selective Timber Cut
_____ Oil/gas Wells
_____ Underground Mining
_____ Agriculture
_____ Construction

E. LOCATION OF LAND USE CHANGE

County_____

U.S.G.S. Quadrangle Map_____

Latitude_____

Longitude_____

River Mile-point_____

F. EXISTING LAND USE (estimate acreage of each)

_____ acres of Forest
_____ acres of Wetland
_____ acres of Farmland
_____ acres of Residential/urban
_____ acres of Mining/Industrial

G. EXTENT OF LAND USE CHANGE

Total acreage affected: _____

Total miles of river front affected: _____

Total acreage surface disturbance: _____

Total acreage timber removal: _____

Average daily water use required: _____

H. PERMITS. Below list all permits obtained to conduct the land use change:

Permit Number	Issuing Agency
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

Attach copies of all permits to this application form.

I. DESCRIPTION OF LAND USE CHANGE

Date land use will begin: _____

Date land use will conclude: _____

Effective dates of lease or contract (if applicable): _____

Distance (in feet) of land use change from wild river: _____

Average slope (degrees) of affected land: _____

Soil types (list type nearest to wild river first): _____

_____

Attach Land Use Plan to this application form.

J. STATEMENT OF CONFIRMATION

I hereby agree that the information provided on this application form is accurate to the best of my knowledge, and I will comply fully with all terms and conditions attached to the Change of Use Permit issued in my name by the Natural Resources and Environmental Protection Cabinet.

Signature: _____ _____
Applicant Date

For Agency Use Only

Date Received: _____ *Received By:* _____

Date Site Inspection: _____ *Inspector(s):* _____

Date Public Hearing: _____ *Location:* _____

Date Comment Period Ends: _____ *Comments:* _____

RETURN THIS FORM TO: Wild Rivers Program, Division of Water, Department for Environmental Protection, 18 Reilly Road, Frankfort, KY 40601, or call (502) 564-3410 if you have any questions about completing this application form.

Permit Application No. _____

WILD RIVERS CHANGE OF USE PERMIT APPLICATION
Land Use Plan for Oil and Gas Production

GENERAL PERMIT REQUIREMENTS. KRS 146.290 requires that a landowner obtain a permit prior to conducting a resource removal within a Wild River corridor designated pursuant to KRS 146.220. A permit to authorize oil and gas production contains performance standards and guidelines to protect the scenic and environmental quality of the designated river corridor.

For aesthetic, water quality and fish and wildlife purposes, no clearing of vegetation or other surface disturbance should occur within 100 feet of the banks of a Wild River. No discharge into surface waters of oil, brine water or other substances used in or resulting from the exploration, drilling and production of oil and gas will be permitted within a Wild River corridor. In most cases, storage or holding tanks should be located outside of the corridor. Construction and all activities involving the use of heavy equipment should be conducted during the dry season, generally June 1 to October 31. Blowout prevention equipment should be used on drilling rigs. Other site-specific permit conditions will be determined when the completed permit application is reviewed.

A. GENERAL OPERATION PLAN

1. Attach a U.S. Geological Survey topographic map (scale:1 inch = 500 ft.) showing the planned locations and routes of each of the following:
   - **a.** Access roads and stream crossings
   - **b.** Wells
   - **c.** Tank battery
   - **d.** Equipment holding areas
   - **e.** Collection or holding pits and ponds
   - **f.** Collecting lines and pipelines

2. Provide estimates, to the best of your knowledge, of the following:
   - **a.** Total acreage to be cleared around each well: _____.
   - **b.** Number of trees per acre to be cut, if any: _____.
   - **c.** Number and size of collection or holding pits: _____.
   - **d.** Number and size of tanks in battery: _____.
   - **e.** Length and width of access roads to be constructed or improved: _____.
   - **f.** Total length of collecting lines and pipelines: _____.
   - **g.** Number and acreage of equipment holding areas: _____.

3. Indicate how often the operation facilities will be inspected by the leasee or his representatives:

4. List all chemicals to be used, including cleaning acids, pesticides, etc., and describe the planned methods of application for each:

B. PROTECTION OF SOIL, WATER AND VISUAL QUALITY

1. Briefly describe the methods that will be used to control soil erosion on each of the following:
   - **a.** Access roads

b. Well benches

c. Equipment holding areas

2. Briefly describe planned methods for protecting fish habitat and water quality at stream and drainage crossings (i.e.,use of culverts, temporary bridges, etc.):

3. Briefly describe planned methods for keeping logging debris and other organic matter out of surface waters:

4. Briefly describe planned methods for minimizing the visual impact of the new land use as viewed from the wild river:

C. SPILL PREVENTION AND CONTROL COUNTERMEASURE PLAN

Attach a Spill Prevention and Control Countermeasure (SPCC) Plan (required under 40 CFR Part 112). Describe in detail planned methods for preventing, containing and cleaning up accidental leaks or spills of oil or brine water, explosions, fires or other environmental hazards. Include a description of the tank battery, lining of holding pits, method to separate oil and brine, prevention of vandalism of tanks and placement of pipelines. Attach additional sheets if necessary.

D. RECLAMATION

Describe planned methods for restoring the affected area to its present appearance and condition at the conclusion of the new land use, including plans for revegetation and stabilization of disturbed areas.

NAME AND TELEPHONE NUMBER OF PERSON TO CONTACT FOR MORE INFORMATION:

RETURN THIS FORM TO: Wild Rivers Program, Division of Water, Department for Environmental Protection, Frankfort Office Park, Frankfort, KY 40601.

COMMONWEALTH OF KENTUCKY
DEPARTMENT OF MINES AND MINERALS
DIVISION OF OIL AND GAS
PO BOX 2244
FRANKFORT, KY 40601
PHONE (502) 573-0147

Operator Certification
of Formation Offset
and Vertical Depth

Operator Name _____ Permit Number _____

Mineral Owner (Lessor) _____ Well Number _____

Carter Coordinate _____ FNL _____ FSL _____ FEL _____ FWL Sec._____ Letter _____ Number _____

Lateral offset in feet from the wellsite to the top of the formation and the bottom (target) of the formation and the true vertical depth:

FORMATION NAME	LATERAL OFFSET TOP OF FM.	TRUE VERTICAL DEPTH TOP OF FM.	LATERAL OFFSET BOTTOM OF FM. OR TARGET	TRUE VERTICAL DEPTH BOTTOM OF FM. OR TARGET

Lateral offset to coal seam(s) and true vertical depth if drilling directionally or horizontally through a coal seam:

LATERAL OFFSET TOP OF COAL SEAM	TRUE VERTICAL DEPTH TOP OF COAL SEAM	LATERAL OFFSET BOTTOM OF COAL SEAM	TRUE VERTICAL DEPTH BOTTOM OF COAL SEAM

I CERTIFY THAT THE INFORMATION ON THIS FORM IS ACCURATE AND TRUE TO THE BEST OF MY KNOWLEDGE.

OPERATOR SIGNATURE _____ TITLE _____

DATE _____

FORM ED-8 (ORG. 8-91) (REV. 2-99)

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COMMONWEALTH OF KENTUCKY
DEPARTMENT OF MINES AND MINERALS
DIVISION OF OIL AND GAS
PO BOX 2244
FRANKFORT, KY 40601 PHONE: (502) 573-0147

AFFIDAVIT OF WELL LOG AND COMPLETION REPORT
AS REQUIRED BY LAW

(TYPE OR PRINT IN INK)

OPERATOR'S PHONE:_____

WELL IDENTIFICATION

PERMIT NO._____

OPERATOR_____

FARM NAME_____WELL NO._____

TYPE OF OPERATION

TWIN..... ☐
REOPEN..... ☐
NEW WELL..... ☐
WORKOVER..... ☐
DEEPENING..... ☐

LOCATION

COUNTY_____

SEC._____, LTR._____, NO._____
FNL FEL
_____FSL, _____FWL

(D.F.)

ELEVATION_____(GROUND)_____(K.B.)

OPERATIONAL DATES

COMMENCED_____ COMPLETED_____

PLACED IN OPERATION_____

PLUGGED_____ SHUT-IN_____

DRILLING CONTRACTOR

NAME_____

ADDRESS_____

_____

WATER ENCOUNTERED

(FRESH, SALT, SULFUR)

TYPE	FROM	TO

COMMENTS_____

_____

GEOPHYSICAL LOGS RUN (AS REQUIRED BY KRS 353.550(2))

(ELECTRICAL, INDUCTION, SONIC, GAMMA RAY, NEUTRON, DENSITY, ECT.)

TYPE	FROM	TO

TOTAL DEPTH DRILLED_____
(AS REQUIRED BY KRS 353.570)

CASING DATA

CASING OUTSIDE DIAMETER	HOLE DIAMETER	DEPTH	CEMENT NO. SKS.	PULLED YES/NO

CEMENT YIELD IN CUBIC FEET/SACK =_____

COMMENTS_____

TYPE OF COMPLETION (CHECK ONE)

DRY HOLE ☐
OIL ☐
GAS..... ☐ DOMESTIC GAS..... ☐
(SHUT-IN OR PRODUCING)

ENHANCED RECOVERY: SERVICE WELL:

WATER INJECTION..... ☐ WATER SUPPLY..... ☐
GAS INJECTION..... ☐ SALT WATER DISPOSAL.... ☐

GAS STORAGE OBSERVATION..... ☐

INJECTION-EXTRACTION..... ☐ OTHER..... ☐

OTHER DESCRIBE_____

WELL TREATMENT **TYPE OF FRAC.**
SHOT

TYPE SHOT_____

SHOT INTERVAL_____

SHOT AMOUNT_____

COMPLETION INTERVAL PERFORATIONS OR OPEN HOLE

FORMATION_____ INTERVAL_____

FORMATION_____ INTERVAL_____

TREATMENT

TYPE TREATMENT_____

ACID AMOUNT_____BBLS. _____BBLS.
2ND STAGE

TOTAL FLUID_____BBLS. _____BBLS.
2ND STAGE

TOTAL NITROGEN_____SCF

TOTAL SAND_____LBS

ADDITIONAL CEMENTING

SQUEEZE CEMENT_____SKS. _____TOP

_____INTERVAL

PLUG BACK_____SKS. _____TOP

_____INTERVAL

INITIAL TEST VOLUMES

OIL: NATURAL_____B/D _____DATE

AFTER TREATMENT_____B/D _____DATE

GAS: NATURAL_____MCF _____DATE

AGAINST BACKPRESSURE OF _____PSI

SHUT-IN PRESSURE_____AFTER_____HOURS

AFTER TREATMENT_____MCF_____DATE

AGAINST BACKPRESSURE OF_____PSI

SHUT-IN PRESSURE_____AFTER_____HOURS

LIST DST'S, CORES, FILL-UP TESTS AND OTHER SPECIALIZED TESTS

FORMATION NAME	INTERVAL

THIS FORM MUST BE COMPLETED AND FILLED FOR EVERY PERMIT IMMEDIATELY AFTER COMPLETION OF THE WELL. RE-OPENED WELLS NEED NOT INCLUDE A DRILLER'S LOG. HOWEVER, THE FRONT SIDE OF THIS FORM MUST BE COMPLETED. INCOMPLETE FORMS WILL BE REJECTED.

FORM ED-3 (REV. 2-99) ALL PREVIOUS FORMS ARE OBSOLETE OVER

FORMATION RECORD

FROM	TO	ROCK TYPE (DESCRIBE ROCK TYPES AND OTHER MATERIALS PENETRATED AND RECORD OCCURRENCES OF OIL, GAS AND WATER FROM SURFACE TO TOTAL DEPTH)	FROM	TO	ROCK TYPE (DESCRIBE ROCK TYPES AND OTHER MATERIALS PENETRATED AND RECORD OCCURRENCES OF OIL, GAS AND WATER FROM SURFACE TO TOTAL DEPTH)

AFFIDAVIT

_____, OPERATOR OF THE WELL CAPTIONED AS

PERMIT NUMBER _____DOES HEREBY SWEAR THAT THE DEPTH OF THE WELL

IS ACCURATE AND CORRECT AND DOES NOT EXCEED THE **PERMITTED DEPTH** OF _____ .

SIGNATURE OF OPERATOR _____

TITLE DATE

SWORN TO AND SUBSCRIBED BEFORE ME THIS _____ DAY OF _____,19 _____

_____

NOTARY PUBLIC

MY COMMISSION EXPIRES: _____

FORM ED-3 (REV. 2-99)

COMMONWEALTH OF KENTUCKY
DEPARTMENT OF MINES & MINERALS
DIVISION OF OIL AND GAS
P. O. BOX 2244
FRANKFORT, KY 40601 PHONE (502) 573-0147

(TYPE OR PRINT IN INK)

AFFIDAVIT TO TIME AND MANNER OF PLUGGING AND FILLING WELL
AS REQUIRED BY LAW

_____
NAME AND ADDRESS OF LAST OPERATOR

_____
NAME AND ADDRESS OF ORIGINAL OPERATOR

_____
NAME AND ADDRESS OF COAL OPERATOR

PERMIT NO._____, ELEVATION_____, COUNTY_____, TOTAL DEPTH_____
FNL FEL
CARTER COORDINATES_____FSL, _____FWL, SEC. _____, LETTER_____, NUMBER_____

FARM OWNER (LESSOR) _____ WELL NUMBER _____

AFFIDAVIT TO BE MADE IN TRIPLICATE, ONE COPY TO BE MAILED TO THE DEPARTMENT OF MINES AND MINERALS, ONE COPY TO BE RETAINED BY THE WELL OPERATOR AND THE THIRD TO BE MAILED BY REGISTERED MAIL TO EACH COAL OPERATOR NAMED AT THEIR RESPECTIVE ADDRESSES.

AFFIDAVIT

STATE OF KENTUCKY,

COUNTY OF _____} SS:

_____, OPERATOR OF THE ABOVE CAPTIONED WELL DOES HEREBY SWEAR THAT THE PLUGGING OF SAID WELL WAS COMPLETED ACCORDING TO INSTRUCTIONS FROM THE OIL AND GAS INSPECTOR AND ACCORDING TO CHAPTER 353 OF THE KENTUCKY REVISED STATUTES ON _____. 19_____, RECORD OF WHICH IS LISTED BELOW OR SHOWN ON THE BACK OF THIS FORM.

(PLUG DESCRIPTION)

PLUGGED: FROM _____ TO _____ WITH _____

FROM _____ TO _____ WITH _____

FROM _____ TO _____ WITH _____

FROM _____ TO _____ WITH _____

FROM _____ TO _____ WITH _____

FROM _____ TO _____ WITH _____

FROM _____ TO _____ WITH _____

FROM _____ TO _____ WITH _____

INDICATE BELOW THE SIZE AND INTERVAL OF ALL CASING LEFT IN THE WELL AND IF AND WHERE IT WAS SHOT OFF.

CASING SIZE _____, INTERVAL _____, SHOT OFF AT _____ BOTTOM OF CASING AT _____

CASING SIZE _____, INTERVAL _____, SHOT OFF AT _____ BOTTOM OF CASING AT _____

CASING SIZE _____, INTERVAL _____, SHOT OFF AT _____ BOTTOM OF CASING AT _____

IF CASING WAS NOT LEFT IN THE WELL, INDICATE THE BORE HOLE SIZE AND INTERVAL.

BORE HOLE SIZE_____ INTERVAL_____

BORE HOLE SIZE_____ INTERVAL_____

STATE WHETHER OR NOT OTHER STEEL OR JUNK WAS LEFT IN THE WELL AND DESCRIBE: _____

_____
(OPTIONAL) SIGNATURE OF CONTRACTOR RESPONSIBLE FOR ABOVE PLUGGING TITLE

_____
(REQUIRED) SIGNATURE OF OPERATOR RESPONSIBLE FOR ABOVE PLUGGING TITLE

SWORN TO AND SUBSCRIBED BEFORE ME THIS _____DAY OF _____, 19_____

_____
NOTARY PUBLIC

MY COMMISSION EXPIRES:_____

ALL BLANKS MUST BE COMPLETED. INCOMPLETE AFFIDAVITS WILL BE REJECTED.
FORM ED-38 (REV. 2-99)

OVER

CEMENT TABLE

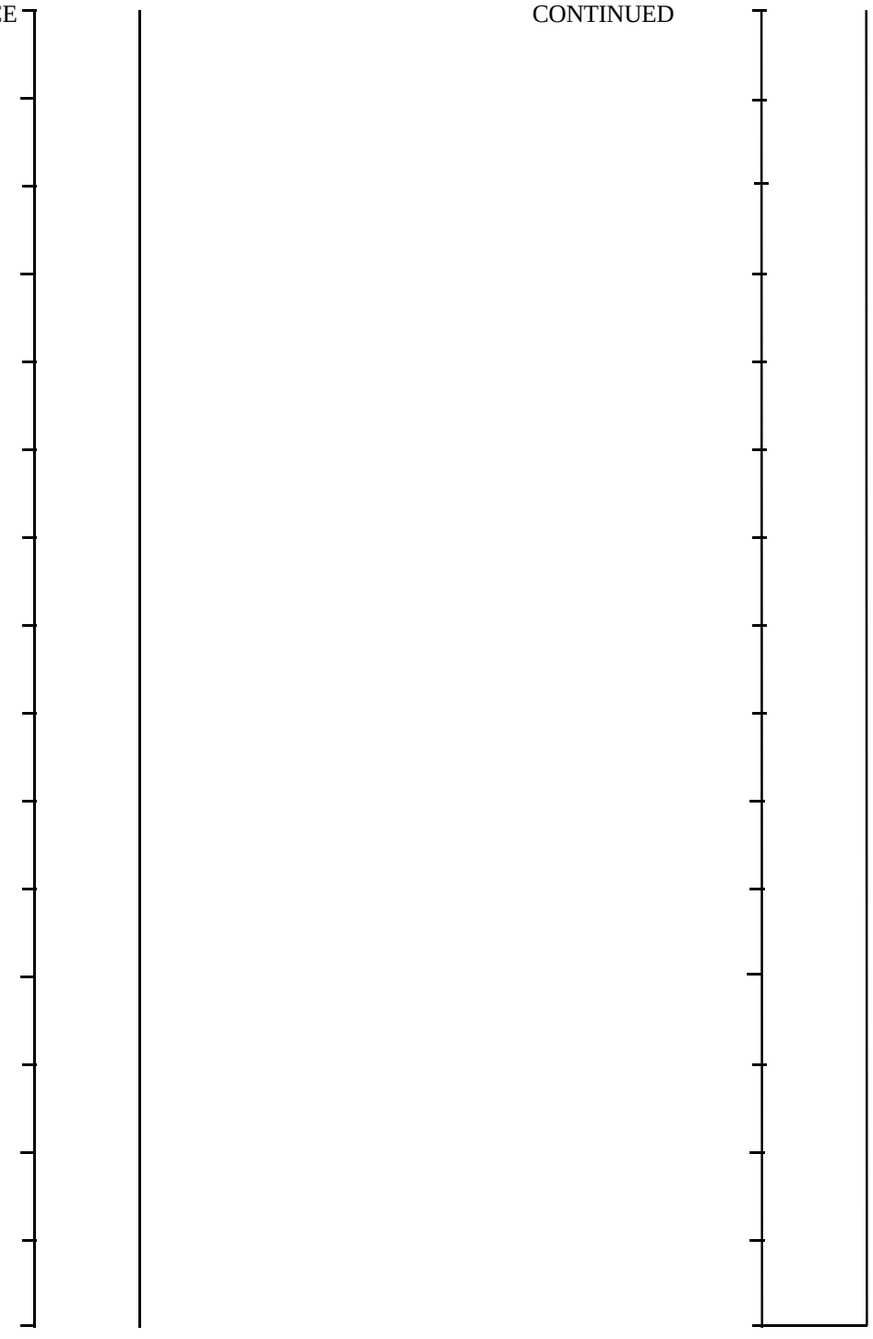
HOLE SIZE	2"	3"	4"	5"	6 ½"	8"	8 ½"	8 ¾"	10"	12"	16"
NO. FT. FILLED PER SACK OF CEMENT*	45'	20'	11'	7'	4'	2 ¾'	2 ½'	2 1/3'	2'	1'	½'

* 1 CUBIC FOOT PER SACK

GRAPHICALLY SHOW BELOW THE LOCATION AND INTERVAL OF ALL PLUGS INSTALLED.

SURFACE

CONTINUED



TOTAL DEPTH

IF THE WELL IS TO BE LEFT AS A DOMESTIC WATER WELL, PLUG ACCORDING TO THE INSPECTORS INSTRUCTIONS, COMPLETE THIS FORM ON BOTH SIDES AND HAVE THE FOLLOWING AFFIDAVIT SIGNED BY THE REAL ESTATE OWNER.

AFFIDAVIT

I,_____, THE OWNER OF THE REAL ESTATE ON WHICH THIS WELL WAS DRILLED, DESIRE THAT THE WELL BE LEFT OPEN FROM THE FRESH WATER ZONE TO THE SURFACE FOR USE AS A WATER WELL AND DO HEREBY ACCEPT THE FULL RESPONSIBILITY FOR SAID WATER WELL. THE OIL OPERATOR REMAINS RESPONSIBLE FOR ALL PLUGS BELOW THE FRESH WATER ZONE

_____ _____

SIGNATURE OF OWNER OR HIS AGENT DATE

FORM ED-38 (REV. 2-99)

STOP!! DO NOT ATTEMPT TO COMPLETE THIS FORM UNTIL YOU HAVE CAREFULLY READ THE INSTRUCTIONS

Type of Registration **(check one)**: ☐ New ☐ Update ☐ Update Involving Transfer of Ownership

1. Registration No.: _____ **(agency use only)**

2. a. Owner's Name: _____

   b. Owner's Mailing Address: _____

   c. City: _____ State: _____ Zip Code: _____

   d. Telephone No.: (____) _____

   e. Business Form: ☐ Partnership ☐ KY Corporation ☐ Non-KY Corp ☐ Solepropreitor

3. Manager's/Pumper's Name: _____

   Telephone Number: (____) _____

4. Lease Name: _____

5. Tank Battery Location and Size:

   a. Carter Coordinates: Section: _____ Letter: _____ No.: _____

      Feet from North Line _____ or Feet from South Line _____

      Feet from East Line _____ or Feet from West Line _____

   b. County: _____ Highway: _____

   c. Number and storage capacity of tanks: _____

   d. SPCC containment provided ☐ Yes ☐ No

6. Production Associated With This Tank Battery

   a. Total wells connected to battery: _____

   b. Number of production wells: _____

      List Department of Mines and Minerals Well Permit #_____

   c. Amount of oil produced: _____ bbls/day

      Amount of gas produced: _____ mcf/day

   d. Amount of produced water made: _____ bbls/day

(continued)

7. Produced Water Disposal Method **(check one)**

a. ☐ Enhanced Recovery Well ☐ Discharge to a Surface Stream or Pit

☐ Disposal Well ☐ Evaporation (describe) _____

☐ Transported Off-Site for Disposal

☐ Other (describe) _____

☐ KPDES Permit No.: _____

b. If the disposal method is a well, what is the name of the receiving formation and the EPA UIC Permit # _____.

c. If the disposal method involves a discharge to a surface stream, what is the distance to and name of the receiving stream _____.

8. Provide photocopy of USGS topo map with the location(s) of the Tank Batterie(s) marked.

9. Signature _____ Title _____

Please Print Name _____ Date _____

OIL AND GAS PRODUCERS PRODUCED WATER DISPOSAL REGISTRATION FORM
COMMONWEALTH OF KENTUCKY
NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION CABINET
DEPARTMENT FOR ENVIRONMENTAL PROTECTION
DIVISION OF WATER

Regulation 401 KAR 5:090, Section 4 (Control of Water Pollution From Oil and Gas Facilities), requires all oil and gas operators to register their facilities with the Division of Water. Those operators who have submitted registration forms previously are not required to submit these forms unless there has been a change in the information submitted.

INSTRUCTIONS
COMPLETE A REGISTRATION FORM FOR EACH TANK BATTERY
PLEASE PRINT OR TYPE

1. Registration No.: Do not write in this space, this number will be assigned by Division of Water Office personnel.

2. Owner's Name, Mailing Address and Telephone No.: Give the complete name, mailing address, and telephone number of the operator.

3. Manager's/Pumper's Name and Telephone No.: Give the complete name and telephone number of the manager or pumper.

4. Lease Name: Give the current lease name.

5. Tank Battery Location: Give the Carter Coordinate location and the county of this tank battery.

6. Production Associated With This Battery: Give the total number of wells and the number of production wells associated with this tank battery. Give the amounts of oil (in barrels per day), gas (in thousand cubic feet per day) and produced water (in barrels per day) processed at this tank battery.

7. Produced Water Disposal Method: Check the box which best describes your disposal method.

   Enhanced Recovery Well: Produced water is discharged through a well into the production zone to aid in the recovery of oil or gas.

   Disposal Well: Produced water is discharged through a well into a zone other than the production zone for disposal.

   Transported Off-Site for Disposal: Produced water is removed from the tank battery by way of a tank truck or pipeline for disposal at another site.

   Discharge to a Surface Stream or Pit: Produced water is placed in a pit which has a discharge to a surface stream, and/or produced water directly discharges into a surface stream.

   Evaporation: Produced water is placed in a pit which has no surface discharge or enhanced evaporation, please describe.

8. USGS Topographic Map: Please provide photocopy of map spotting location(s) of Tank Batteries(s).

9. Signature: The person who is responsible for the operation of this tank battery shall sign this form and indicate their title.

If more forms are required, please contact the Division of Water at (502) 564-3410.

Return the completed forms to the following address:

Industrial Section
KPDES Branch
Division of Water
14 Reilly Road, Frankfort Office Park
Frankfort, Kentucky 40601

Department for Environmental Protection
Division of Water, KPDES Branch
14 Reilly Road, Frankfort Office Park
Frankfort, Kentucky 40601

TRANSFER OF OWNERSHIP

PURSUANT TO 401 KAR 5:090, SECTION 4

TRANSFERRED TO:	*TRANSFERRED FROM:*
OPERATOR _____	**OPERATOR** _____
ADDRESS _____	**ADDRESS** _____
_____	_____
IF CORPORATION, NAME PRINCIPAL REPRESENTATIVE	**IF CORPORATION, NAME PRINCIPAL REPRESENTATIVE**
_____	_____

Enclose a Completed Updated Registration Form for Each Facility Listed

LEASE NAME	COUNTY	REGISTRATION NUMBER

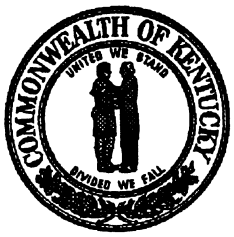
CERTIFICATION:

I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND I AM FAMILIAR WITH THE INFORMATION SUBMITTED IN THIS DOCUMENT. I BELIEVE THAT THE INFORMATION IS TRUE, ACCURATE, AND COMPLETE. IN ORDER FOR THE DIVISION OF WATER TO ACCEPT THIS DOCUMENT, SIGNATURES OF BOTH THE BUYER AND THE SELLER ARE REQUIRED. IF YOU ARE UNABLE TO OBTAIN THE SIGNATURE OF THE SELLER, SOME OTHER VERIFICATION OF THE TRANSACTION, SUCH AS A COPY OF THE ASSIGNMENT WILL BE ACCEPTABLE.

_____ _____
SIGNATURE OF PURCHASER **DATE**

_____ _____
SIGNATURE OF SELLER **DATE**

APPLICATION FOR PERMIT TO INSTALL ABOVEGROUND STORAGE TANKS FOR PETROLEUM PRODUCTS OR HAZARDOUS SUBSTANCES



AIG Tanks

For Office Use Only
Revised Form on: December 17, 1996

Permit No.: _____

Approved By: _____

Date Approved: _____

Amount Paid: _____

Installation Site

NAME OF BUSINESS/COMPANY (D/B/A)

STREET ADDRESS

CITY STATE ZIP CODE

( ) TELEPHONE NUMBER COUNTY

CONTACT PERSON FEDERAL TAX ID NUMBER

Owner of Tanks

OWNER/OPERATOR/COMPANY NAME

STREET ADDRESS

CITY STATE ZIP CODE

( ) TELEPHONE NUMBER COUNTY

Installation Contractor

NAME OF CONTRACTOR

COMPANY NAME

STREET ADDRESS

CITY STATE ZIP CODE

( ) TELEPHONE NUMBER

Type of Facility

☐ Commercial ☐ Private Use ☐ Government

☐ Heating Oil ☐ Bulk Plant

☐ Other (Please Specify): _____

_____

PLEASE RETURN COMPLETED APPLICATION TO THE ADDRESS LISTED BELOW:

Department of Housing, Buildings and Construction
State Fire Marshal's Office - Hazardous Materials Section
Attention: Dale Mancuso
1047 U.S. Highway 127 South, Suite 1
Frankfort, Kentucky 40601-4337
Telephone Number: (502) 564-3626

Tank Type Codes:

01	UL 142	04	ASME	07	API 12D	10	Sti 921
02	UL 80	05	API 650	08	API 12F	11	Other
03	UL 2085	06	API 12B	09	DOT		

1. **Tank Information:**

*NOTE: **Tank numbers shall correspond with the tank numbers on the accompanying site plan.***

TANK #1: ☐ GAL ☐ BBL

CAPACITY (GALLONS) | TANK TYPE CODE | APPROXIMATE AGE OF TANKS

PRODUCT STORED

☐ Vertical ☐ Horizontal ☐ Compartmented

TANK #2: ☐ GAL ☐ BBL

CAPACITY (GALLONS) | TANK TYPE CODE | APPROXIMATE AGE OF TANKS

PRODUCT STORED

☐ Vertical ☐ Horizontal ☐ Compartmented

TANK #3: ☐ GAL ☐ BBL

CAPACITY (GALLONS) | TANK TYPE CODE | APPROXIMATE AGE OF TANKS

PRODUCT STORED

☐ Vertical ☐ Horizontal ☐ Compartmented

TANK #4: ☐ GAL ☐ BBL

CAPACITY (GALLONS) | TANK TYPE CODE | APPROXIMATE AGE OF TANKS

PRODUCT STORED

☐ Vertical ☐ Horizontal ☐ Compartmented

TANK #5: ☐ GAL ☐ BBL

CAPACITY (GALLONS) | TANK TYPE CODE | APPROXIMATE AGE OF TANKS

PRODUCT STORED

☐ Vertical ☐ Horizontal ☐ Compartmented

TANK #6: ☐ GAL ☐ BBL

CAPACITY (GALLONS) | TANK TYPE CODE | APPROXIMATE AGE OF TANKS

PRODUCT STORED

☐ Vertical ☐ Horizontal ☐ Compartmented

Material safety data sheets must accompany this application if the products to be stored are other than gasoline, diesel fuel, fuel oil, kerosene or lubricating oils.

a) From the tanks, what are the distances to nearest important buildings? _____ feet

b) From the tanks, what are the distances to property lines? _____ feet

c) Will the tanks be near any L.P. containers? ☐ Yes ☐ No

If yes, how far away will they be? _____ feet

d) What type of spillage control facilities will be used?

☐ Dike ☐ Double -wall Tank ☐ Remote Impoundment

e) What will be the capacity of the spillage control facilities? _____ gallons

f) What are the dimensions of each tank?

TANK #1

_____.____ ft. (LENGTH/HEIGHT) x _____.____ ft. (DIAMETER)

TANK #2

_____.____ ft. (LENGTH/HEIGHT) x _____.____ ft. (DIAMETER)

TANK #3

_____.____ ft. (LENGTH/HEIGHT) x _____.____ ft. (DIAMETER)

TANK #4

_____.____ ft. (LENGTH/HEIGHT) x _____.____ ft. (DIAMETER)

TANK #5

_____.____ ft. (LENGTH/HEIGHT) x _____.____ ft. (DIAMETER)

TANK #6

_____.____ ft. (LENGTH/HEIGHT) x _____.____ ft. (DIAMETER)

1. **Tank Information (continued):**

g) What will the fill connection diameter be for each tank (indicate inches)?

Tank #1	TANK #2	TANK #3	TANK #4	TANK #5	TANK #6
☐☐	☐☐	☐☐	☐☐	☐☐	☐☐

h) What are the diameters of the working vents (indicate inches)?

Tank #1	TANK #2	TANK #3	TANK #4	TANK #5	TANK #6
☐☐	☐☐	☐☐	☐☐	☐☐	☐☐

i) What are the diameters of the emergency vents - if equipped (indicate inches)?

Tank #1	TANK #2	TANK #3	TANK #4	TANK #5	TANK #6
☐☐	☐☐	☐☐	☐☐	☐☐	☐-

If the tanks do not have emergency vents, are they designed with a weak roof to shell seam?
☐ Yes ☐ No

j) Will a valve be installed as close to the tank as practical if a connection is made to the liquid area of the tank? ☐ Yes ☐ No

k) If class I liquids are to be stored, will the vent pipe outlets be at least twelve (12) feet above adjacent ground level? ☐ Yes ☐ No

l) If the liquid being stored is other than a class I liquid, will the vent pipe outlet be above the fill connection? ☐ Yes ☐ No

m) If class IA liquids are being stored, will the tanks be equipped with pressure/vacuum venting devices?
☐ Yes ☐ No

n) If the tank is over 1,000 gallons capacity, will overfill prevention be provided? ☐ Yes ☐ No

o) If the liquid being stored is a class I or class II liquid, will the fill connection terminate within six (6) inches of the tank bottom? ☐ Yes ☐ No

p) Will *"no smoking"* signs be provided in the area of the tanks? ☐ Yes ☐ No

q) If the tanks are located at a public facility, will they be enclosed in a chain link fence at least six (6) feet high? ☐ Yes ☐ No

r) Will the tank outlets be equipped with some sort of anti-siphon device located as close as practical to the tank? ☐ Yes ☐ No

s) If the storage tank supplies a day tank, will the day tank be provided with return piping that is a continuous run without traps or sags and that is of a larger diameter than the supply piping?
☐ Yes ☐ No

t) If the fill connection point is other than at tank top, will a check valve be provided to prevent back-flow from the system? ☐ Yes ☐ No

u) Will the tanks be protected from vehicular damage if placed in a traffic area? ☐ Yes ☐ No

Aboveground Piping:

a) Will the aboveground piping be substantially supported and protected against physical damage and excessive stresses? ☐ Yes ☐ No

b) Will the aboveground piping be provided with pressure relief devices that discharge to a suitable location? ☐ Yes ☐ No

c) Will the aboveground piping meet the requirements of ANSI B31, American National Standard Code for Pressure Piping? ☐ Yes ☐ No

Underground Piping:

a) Delivery Method: ☐ Pressurized ☐ Suction

b) Type: ☐ Steel ☐ FRP ☐ Approved Non-Metallic

c) Will FRP and non-metallic piping be listed for use with alcohols and other oxygenated fuels? ☐ Yes ☐ No

d) Will flexible connections be provided at every change of direction from the vertical to the horizontal, and vice versa? ☐ Yes ☐ No

e) Type of flexible connections: ☐ Swing Joints ☐ Approved Flexible Connectors

f) Depth of piping: _____ inches

g) Is secondary containment provided for product piping? ☐ Yes ☐ No

h) Will pipe sealant be compatible with product to be used? ☐ Yes ☐ No

i) Indicate type of bedding and backfill around piping: ☐ Sand ☐ Pea Gravel ☐ Crushed Rock

j) FRP piping to be properly installed per manufacturer's specifications: ☐ Yes ☐ No

k) Type of steel pipe used: ☐ Galvanized ☐ Black

l) Indicate degree of slope on piping (inches per foot): ☐ Level or ☐ ⅛ ☐ ¼ ☐ ½

m) If suction piping is used, indicate location of check valve: ☐ Tank ☐ Pump/Dispenser

n) If pressurized pipe is used, will approved leak detectors be used: ☐ Yes ☐ No

Type: ☐ Mechanical ☐ Electronic

o) Indicate method of cathodic protection for steel piping: ☐ Anode ☐ Impressed Current

p) Indicate method of sacrificial anode attachment to piping: ☐ Cadweld ☐ Thermite Weld ☐ Mechanical Clamp

3. **Underground Piping (Continued):**

q) Steel pipe to be used for product or vent lines: ☐ Schedule 40 ☐ Schedule 80

r) Steel couplings for product or vent lines will be: ☐ Schedule 40 ☐ Schedule 80

s) Method of leak detection for piping: ☐ Tightness Testing
☐ Ground Water Monitoring ☐ Vapor Monitoring ☐ Interstitial Monitoring

4. **Pumps/Dispensers:**

a) Where will the pump/dispensers be located in relation to the tanks? ☐ Tank Top
☐ 5 to 49 Feet ☐ 50 Feet and Greater ☐ Directly Adjacent to the Dike Wall

b) Will all dispensers be at least:

Twenty (20) feet from fixed source of ignition? ☐ Yes ☐ No
Ten (10) feet from property lines? ☐ Yes ☐ No
Five (5) feet from any building opening? ☐ Yes ☐ No

c) Will heating fuel dispensers be located on a different island gasoline dispensers? ☐ Yes ☐ No

d) Will each end of a dispenser island be protected with metal crash post barriers at least thirty (30) inches in height? ☐ Yes ☐ No

e) Will shear valves be properly installed on pressurized piping runs? ☐ Yes ☐ No

f) Will the pumps and dispensers be UL listed? ☐ Yes ☐ No

g) Will some sort of emergency shut-off device be provided more than twenty (20) feet, but less than one hundred (100) feet from the dispensing area? ☐ Yes ☐ No

h) Will all wiring be installed in accordance with NFiPA 70, the National Electrical Code?
☐ Yes ☐ No

i) Will the wiring be certified by a certified electrical contractor? ☐ Yes ☐ No

5. **Bulk Plants:**

a) Please indicate the distance from the load rack to nearest building, property line, and storage tanks:
_____ Feet to Building _____ Feet to Property Line _____ Feet to Storage Tanks

b) If the rack is a top loading type, will the final fuel control valve be of the self-closing type?
☐ Yes ☐ No

c) If the rack is a bottom load configuration, will an automatic overfill prevention system be provided?
☐ Yes ☐ No

d) In the load/un-load area, will an emergency drainage system be provided that will direct leakage or spillage to a safe location? ☐ Yes ☐ No

Fee Schedule

KRS 198B requires a fee for plan review services. A charge of $50.00 for the first tank and $25.00 for each additional tank is required for this specialized review. **The required fee must accompany your application for permit.** Your check or money order should be made payable to the *"Kentucky State Treasurer"*. The name and location of the project must be indicated on the check or money order.

I, the undersigned, do hereby agree that this installation shall comply with all applicable requirements of the State Fire Marshal's Office promulgated in 815 KAR 10:050 and all other applicable standards as required. All answers in this application are true and accurate to the best of my knowledge.

_____ _____

Contractor (Signature) Date

Did you enclose your plan review fee? ☐ Yes ☐ No Amount: $ _____ .00

Note: Site plan, specifications and check or money order shall accompany this document for approval.

Approval by the State Fire Marshal's Office

Approval of plans to install, subject to final inspection and testing. System shall not be used or products dispensed prior to notification of local State Fire Marshal representative.

_____

Senior Deputy State Fire Marshal
Office of the State Fire Marshal
Hazardous Materials Section

This storage tank system was tested on _____ with satisfactory results.

Pursuant to KRS 227.300, REG. 815, and KAR 10:050 the above listed installation is found to have substantially complied with the Kentucky "*Standards of Safety*".

_____

Field Inspector
Office of the State Fire Marshal
Hazardous Materials Section

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COMMONWEALTH OF KENTUCKY
DEPARTMENT OF MINES & MINERALS
DIVISION OF OIL AND GAS
P. O. BOX 2244
FRANKFORT, KY 40601
PHONE (502) 573-0147

OFFICE USE ONLY
TR LEDGER #_____
OPERATOR NUMBER:_____
BOND NUMBER:_____
TRANSFER FEE: $25.00/WELL
TOTAL NUMBER OF WELLS ON THIS LEASE TO BE TRANSFERRED:_____
TOTAL AMOUNT REMITTED ON THIS FORM:_____

WELL TRANSFER

PRESENT OPERATOR:_____

ADDRESS:_____

_____

PHONE NO._____

TOTAL NUMBER OF WELLS ON THIS LEASE TO BE TRANSFERRED:_____

LEASE NAME:_____

TRANSFERRED TO: _____

OPERATOR:_____

ADDRESS:_____

_____

PHONE NO._____

IF CORPORATION, NAME OF PRINCIPAL OFFICER:

_____

COUNTY:_____

WELL NO.	CARTER COORDINATE SPOT LOCATIONS	PERMIT NO.

ATTEST: I, THE UNDERSIGNED, SUCCESSOR IN TITLE TO THE WELLS LISTED ABOVE OR ON THE ATTACHED SHEETS, REQUEST THE DIVISION OF OIL AND GAS, DEPARTMENT OF MINES AND MINERALS TO TRANSFER AND PLACE THESE WELLS UNDER MY BOND. THEREBY, I AM ASSUMING COMPLETE RESPONSIBILITY FOR THEM UNDER KRS CHAPTER 353 AND THE RULES AND REGULATIONS PROMULGATED THEREUNDER.

_____ _____
DATE SIGNATURE OF PURCHASER

ACKNOWLEDGED_____
SIGNATURE OF SELLING OPERATOR

INSTRUCTIONS: USE A SEPARATE FORM FOR EACH LEASE. ATTACH A SEPARATE LIST, IF THERE ARE MORE WELLS THAN CAN BE LISTED ON THIS SHEET. MAKE CHECKS PAYABLE TO "THE KENTUCKY STATE TREASURER."

FORM ED-13 (REV. 2-99)

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Commonwealth of Kentucky
Natural Resources and Environmental Protection Cabinet
Department for Environmental Protection
Division of Water

APPLICATION FOR CONSTRUCTION AND OPERATION OF A PRODUCED WATER HOLDING PIT - 401 KAR 5:090, SEC. 9

(Instructions for completing and submitting this form on back.)

Please Print or Type

1. Registration No.

2. Operator's Name: _____
   Mailing address: _____
   City: _____ State: ____ Zip Code: _____
   Telephone Number: (___) _____

3. Lease Name: _____

4. Construction Specifications:
   (a) Dimensions: _____
   (b) Liner Composition: _____
   (c) Liner Thickness: _____
   (d) Height of Berm: _____

5. Operation Specifications: *(See instructions on back)*

6. Closure Specifications: *(See instructions on back)*

7. Permit Fee: Certified check or money order for one hundred dollars ($100.00) is *(check one)*
   ☐ enclosed
   ☐ will submit within 30 days of billing

8. *I certify under penalty of law that I have personally examined and am familiar with the information submitted in this application and all attachments and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.*

Name and Official Title: _____
(Please print or type)

Telephone Number: (___) _____

Signature: _____ Date Signed _____

INSTRUCTIONS

(This form is to be completed and submitted with all necessary attachments at least 20 days prior to the start of construction of a holding pit. Submit two (2) copies of the application package to the Division of Water District Office for the area in which your pit will be located. See attached map.)

1. Registration Number: Write the seven digit number assigned to this facility. If you have not registered or cannot locate the registration number, please call (502) 564-3410 extension 446.

2. Operator's Name, Mailing Address, and Telephone Number: Give the complete name, mailing address, and telephone number of the facility operator.

3. Lease Name: Give the name of the lease and the county in which it is located.

4. Construction Specifications:
   (a) Dimensions: Give the length, width , and depth of the pit in feet,
   (b) Liner Composition: Give the type of liner used (hypalon, polyurethane, etc.),
   (c) Liner Thickness: Give the thickness of the liner in mils,
   (d) Height of Berm: Give the height of the berm in feet.

5. Operation Specifications: The following should be attached to the application:
   1) a diagram (at least 8.5" x 11" and no larger than 11" x14") showing location of surface water diversion structures and their dimensions, and
   2) a narrative describing how minimum freeboard will be maintained and how material will be disposed.

6. Closure Specifications: Attach a narrative describing the type of material that will be used as backfill, final contours, proposed vegetative cover, and how wastes will be disposed.

7. Permit fee: Self explanatory. Make check or money order payable to Kentucky State Treasurer.

8. Certification: Self-explanatory.

DEPARTMENT OF MINES AND MINERALS
DIVISION OF OIL AND GAS
P. O. BOX 2244
FRANKFORT, KY 40601
Phone (502) 573-0147

TEMPORARY ABANDONMENT PERMIT

PERMIT NO._____

OPERATOR:_____

ADDRESS:_____

LEASE (FARM):_____ WELL NO._____

LOCATION:_____FNL FSL _____FEL FWL _____SEC. _____LTR. _____NO.

COUNTY:_____TOTAL DEPTH:_____

CASING SIZE:_____ CASING DEPTH:_____

CASING CEMENTED WITH_____ BAGS OF CEMENT: FROM_____ TO_____

CASING IS SEALED AT TOP BY:_____

THE REASON FOR A REQUEST FOR TEMPORARY ABANDONMENT IS:_____
_____
_____
_____

THE LEASE ON THIS PROPERTY EXPIRES:_____

THE AMOUNT OF TIME NEEDED FOR THIS TEMPORARY ABANDONMENT PERMIT:_____

I, THE OPERATOR OF THE ABOVE NAMED LEASE, HEREBY CERTIFY THAT THE ABOVE INFORMATION IS TRUE AND ACCURATE ON THIS DATE, AND REQUEST A TEMPORARY ABANDONMENT PERMIT BE APPROVED.

_____
OPERATOR'S SIGNATURE TITLE
(IF AN INDIVIDUAL) (IF A CORPORATION, THE SIGNEE MUST GIVE A POSITION TITLE.)

THIS TEMPORARY ABANDONMENT PERMIT IS APPROVED AND SHALL EXPIRE:_____

_____
INSPECTOR, DIVISION OF OIL AND GAS

FORM ED-12 (REV. 2-99)

COMMONWEALTH OF KENTUCKY

DEPARTMENT OF MINES AND MINERALS
DIVISION OF OIL AND GAS
PO BOX 2244
FRANKFORT, KY 40601
PHONE 502 573-0147

CERTIFICATE OF COMPLETION FOR AN INJECTION WELL

1) Permit No. _____(A copy of well location plat must be attached)
2) Operator (name and address) _____
3) Lease Name _____ Well No. _____
4) Carter Coordinate _____fnl/fsl _____fwl/fel sec_____ letter _____ no. _____
5) County _____ Elevation _____ Total Depth _____
6) The casing program for the above identified well is as follows:

Casing Size	New or Used	No. Sacks Cement	Cement Column - Top to Bottom
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

7) Injection shall be accomplished through tubing and packer as described below.

Size of Tubing	Type of Packer	Packer Depth
_____	_____	_____
_____	_____	_____
_____	_____	_____

8) Was cement bond log run? YES / NO If yes, attach one copy.
9) Maximum anticipated injection pressure at well head _____ psi.
10) Maximum anticipated injection volume _____(bbls) (cu.ft.) per day.
11) The injection zone is known as the (geological name) _____, and this formation occurs in this well from _____ to _____.
12) a. The _____ size casing has been cemented to a depth of _____ and the perforated interval
    is from _____ to _____ with _____ number of perforations.
    b. The injection interval is through an open hole and porous strata below the injection interval has not been drilled or is plugged back with a column of cement from _____ to _____.
13) Describe in detail the monitoring method for the annulus between the injection tubing and the next string of casing. Identify the type of instrument to be used and the time interval between observations by a responsible party. Records of monitoring must be kept on file by the operator and available to the Division of Oil and Gas Conservation upon request. (Use additional pages if needed.)

14) I, the operator of the above identified well, certify that the above information is accurate and correct and I further certify that I have run the following mechanical integrity test(s) of the installation to insure there are no leaks in the system. (Describe each test fully) (Use additional pages if needed) (Test Pressures must exceed the maximum anticipated injection pressure listed on line 9 by at least 100 psi)

Certified by _____ (operator's signature only)
date _____ name of signee _____

FORM ED-23

KENTUCKY DEPARTMENT FOR ENVIRONMENTAL PROTECTION
DIVISION OF WATER
APPLICATION TO DISPOSE OF PRODUCED WATER OFF-FACILITY

(Please Print or Type)

I. Producing Facility

Registration Number _____ Lease Name _____

Operator Name _____

Address _____

Barrels of water produced per day _____

Barrels of produced water being transported (bbls/day) _____

II. Hauler

Name _____ Phone Number (___) _____

Address _____

Vehicle License _____, _____, _____

Vehicle Description _____

If by pipeline _____ distance _____ diameter

III. Disposal Site

Registration Number _____ Lease Name _____

Operator Name _____

Address _____

Location (Carter Coordinates) _____ (County) _____

Method of Final Disposal (choose at least one)

_____ Enhanced Recovery

UIC Permit # _____ (if available)

_____ Disposal Well

UIC Permit # _____

_____ No Discharge System (describe) _____

_____

IV. Signature _____ **Date** _____

Name and Title _____

INSTRUCTIONS

I. Producing Facility

Registration Number: Write the seven digit number assigned for the tank battery from which the produced water will be transported. If you have not registered or can not locate the registration number, please call (502) 564-3410.

Lease Name: Give lease name of facility from which the produced water will be transported.

Operator's Name, Address, and Telephone Number: Give the complete name, mailing address, and telephone number of the facility operator.

Barrels of Water Produced Per Day: Give amount of water that is produced per day (example: ? barrels/month or gallons/day, etc.).

II. Hauler

Hauler's Name, Address, and Telephone Number: Give the complete name, mailing address, and telephone number of the transporter.

Transport Vehicle Information: (a) **License Number:** If more than one vehicle is to be used, list all numbers (use separate sheet, if necessary). (b) **Description:** Give the year, make, and capacity of the transport vehicle(s). Or specify alternate method of transportation such as pipelines, etc.

III. Disposal Site

Registration Number: Write seven digit number assigned for the tank battery to which the produced water will be transported. If you have not registered or can not locate the registration number, please call (502) 564-3410.

Lease Name: Give lease name of facility to which the produced water will be transported.

Disposer's Name, Address, and Telephone Number: Give the complete name, mailing address, and telephone number of the disposer.

Location: Give the county name and the Carter Coordinates of the disposal site. If not in Kentucky, please indicate which state.

Final Method of Disposal: Mark final method of disposal (a) **Enhanced Recovery:** Give the Underground Injection Control (UIC) permit number of the disposal facility, if available. Use the Department of Mines and Minerals, Division of Oil and Gas injection well permit number if UIC permit number is not available. (b) **Disposal Well:** Refer to instructions for (a), enhanced recovery. (c) **No Discharge System:** Give a brief description of the no discharge system.

IV. Signature: The person who is responsible for the operation that generates the produced water shall sign this form. **Date, Name and Title:** Self-explanatory.

Send the completed application to the Industrial Wastewater Section, KPDES Branch, Division of Water, 14 Reilly Road, Frankfort Office Park, Frankfort, Kentucky 40601. Transport of produced water can not occur until approval has been granted by the Division of Water.

COMMONWEALTH OF KENTUCKY

DEPARTMENT OF MINES AND MINERALS
DIVISION OF OIL AND GAS
PO BOX 2244
FRANKFORT, KY 40601
PHONE (502) 573-0147

APPLICATION FOR PERMIT FOR USE OF VACUUM

OPERATOR: _____

ADDRESS: _____

LEASE NAME: _____

COUNTY: _____

Well No.	Carter coordinate spot locations	Permit No.
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

Are there any producing wells on premises within one thousand feet of the above listed wells owned by an operator other than yourself? _____

Offset operators to whom notice has been given:

_____
_____
_____
_____
_____
_____

Type of unit to be installed: _____
_____

Formation to which vacuum is to be applied: _____

I hereby certify the above information is correct to the best of my knowledge.

_____
signature of applicant

Instructions: Use a separate application form for each lease. Only one copy need be filed. If Carter coordinate locations cannot be furnished the wells may be shown on a 7 ½ minute topographic map and attached to this application. The map will be returned upon request.

FORM ED-9 (REV 2-99)

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COMMONWEALTH OF KENTUCKY

DEPARTMENT OF MINES AND MINERALS
DIVISION OF OIL AND GAS
PO BOX 2244
FRANKFORT, KY 40601 PHONE (502) 573-0147

ANNUAL REPORT OF MONTHLY PRODUCTION FOR NATURAL GAS AND/OR CRUDE OIL

YEAR:____________

OPERATOR NAME: ____

ADDRESS: ____

REPORT GAS WELLS BY WELL; OIL WELLS BY WELL OR BY LEASE. IF REPORTING OIL PRODUCTION BY LEASE, ATTACH A LIST CONTAINING THE PURCHASER NUMBER AND ALL PERTINENT NUMBERS. THE PURCHASER NUMBER IS ASSIGNED TO THE LEASE BY THE PURCHASER FOR PRODUCTION PAYMENT. THE REPORTING OF PRODUCED GAS IS OPTIONAL.

PERMIT #: _______________ PURCHASER #: ________________ IF BY LEASE, NUMBER OF WELLS_________

FARM NAME: ____ COUNTY________________

PRODUCTION FORMATION(S):____

	PRODUCED GAS (MCF)	NET SALES GAS (MCF)	NET SALES OIL (BBLS)	STATUS PR	STATUS SI
JAN					
FEB					
MAR					
APR					
MAY					
JUN					
JUL					
AUG					
SEP					
OCT					
NOV					
DEC					
TOTAL					

PERMIT #: _______________ PURCHASER #: ________________ IF BY LEASE, NUMBER OF WELLS_________

FARM NAME: ____ COUNTY________________

PRODUCTION FORMATION(S):____

	PRODUCED GAS (MCF)	NET SALES GAS (MCF)	NET SALES OIL (BBLS)	STATUS PR	STATUS SI
JAN					
FEB					
MAR					
APR					
MAY					
JUN					
JUL					
AUG					
SEP					
OCT					
NOV					
DEC					
TOTAL					

PERMIT #: _______________ PURCHASER #: ________________ IF BY LEASE, NUMBER OF WELLS_________

FARM NAME: ____ COUNTY________________

PRODUCTION FORMATION(S):____

	PRODUCED GAS (MCF)	NET SALES GAS (MCF)	NET SALES OIL (BBLS)	STATUS PR	STATUS SI
JAN					
FEB					
MAR					
APR					
MAY					
JUN					
JUL					
AUG					
SEP					
OCT					
NOV					
DEC					
TOTAL					

***NOTE:* OPERATOR'S SIGNATURE IS REQUIRED ON THE BACK SIDE OF THIS FORM.**

FORM ED-17 (ORG. 11/12/97) (REV. 2-99)

PERMIT #: ________________ PURCHASER #: ________________ IF BY LEASE, NUMBER OF WELLS__________
FARM NAME: ____ COUNTY_________________
PRODUCTION FORMATION(S):____

	PRODUCED GAS (MCF)	NET SALES GAS (MCF)	NET SALES OIL (BBLS)	STATUS PR	STATUS SI
JAN					
FEB					
MAR					
APR					
MAY					
JUN					
JUL					
AUG					
SEP					
OCT					
NOV					
DEC					
TOTAL					

PERMIT #: ________________ PURCHASER #: ________________ IF BY LEASE, NUMBER OF WELLS__________
FARM NAME: ____ COUNTY_________________
PRODUCTION FORMATION(S):____

	PRODUCED GAS (MCF)	NET SALES GAS (MCF)	NET SALES OIL (BBLS)	STATUS PR	STATUS SI
JAN					
FEB					
MAR					
APR					
MAY					
JUN					
JUL					
AUG					
SEP					
OCT					
NOV					
DEC					
TOTAL					

PERMIT #: ________________ PURCHASER #: ________________ IF BY LEASE, NUMBER OF WELLS__________
FARM NAME: ____ COUNTY_________________
PRODUCTION FORMATION(S):____

	PRODUCED GAS (MCF)	NET SALES GAS (MCF)	NET SALES OIL (BBLS)	STATUS PR	STATUS SI
JAN					
FEB					
MAR					
APR					
MAY					
JUN					
JUL					
AUG					
SEP					
OCT					
NOV					
DEC					
TOTAL					

THE UNDERSIGNED HEREBY SWEARS OR AFFIRMS THAT THE FOREGOING INFORMATION GIVEN ON THIS REPORT IS TRUE AS HEREIN SET FORTH.

DATED THIS ______________ DAY OF ______________________________________, 19___________________________

SIGNATURE OF OPERATOR TITLE

PRINT OR TYPE SIGNATURE

FORM ED-17 (REV. 2-99)

INSTRUCTIONS FOR COMPLETING "THE ANNUAL REPORT OF MONTHLY PRODUCTION"

OPERATORS MUST **DATE** AND **SIGN** THE BACK OF THE PRODUCTION FORM WHEN COMPLETED. PRODUCTION DATA FOR THE PREVIOUS YEAR IS TO BE FILED IN THE LEXINGTON OFFICE OF THE DIVISION OF OIL AND GAS BY APRIL 15.

NATURAL GAS:

NATURAL GAS PRODUCTION SHALL BE REPORTED ON A PER WELL BASIS.

PERMIT NUMBER:	COMPLETE WITH THE PERMIT NUMBER ISSUED BY THE DIVISION OF OIL AND GAS.
PURCHASER NUMBER:	NUMBER ASSIGNED BY THE PURCHASING COMPANY.
FARM NAME:	COMPLETE WITH INDIVIDUAL WELL NAME AND WELL NUMBER.
PRODUCING FORMATION:	IF COMMINGLED AND NOT METERED SEPARATELY, THEN LIST AS "COMMINGLED" AND LIST THE PERTINENT FORMATIONS.
PRODUCED GAS:	ACTUAL GAS PRODUCED. INDICATE THE AMOUNT OF GAS METERED OR PRO-RATED AT THE WELL HEAD ON A MONTHLY BASIS.
NET GAS SALES:	ACTUAL GAS SOLD. INDICATE THE AMOUNT OF GAS SOLD INTO THE LINE OF FIRST PURCHASE. COULD BE DIFFERENT FROM PRODUCED GAS DUE TO LINE LOSS ANDCOMPRESSOR USAGE.
STATUS:	CHECK EITHER "PRODUCING" OR "SHUT-IN" FOR THE MONTH REPORTED.

COMBINATION GAS/OIL WELL:

SAME AS NATURAL GAS REPORTING BUT INCLUDE THE OIL SALES ON A MONTHLY BASIS.

CRUDE OIL:

CRUDE OIL PRODUCTION MAY BE REPORTED BY INDIVIDUAL WELL OR BY LEASE. WHEN REPORTING BY LEASE, IDENTIFY THE PURCHASER(LEASE) NUMBER USED BY THE CRUDE OIL PURCHASER. PERMIT NUMBERS WHICH CORRESPOND TO THE PURCHASER(LEASE) NUMBER SHALL BE LISTED ON A SEPARATE SHEET OF PAPER AND ATTACHED TO THE PRODUCTION FORM.

EXAMPLE
PURCHASER(LEASE) NUMBER: 12345 PERMIT NUMBERS: 85000, 85001, 85002.

DEPARTMENT of MINES AND MINERALS

P. O. Box 2244, Frankfort, KY 40601

Application To Mine Within 500 Feet of an Oil or Gas Well

For Office Use Only

Mines & Minerals Permit Number _____

Mine Licensee:_____ State File Number:_____

Mine Name or Number:_____ Address:_____

Strata overlying mine at well location (in feet):_____Ft.

Coal Seam:_____ Seam thickness (in inches):_____In.

Method of Survey:_____

Dept. of Mines & Minerals District Office:_____

No coal shall be mined from the _____X _____foot square block of coal shown to be left centered about the well on the map accompanying the application.

NOTE: Attach an 8 1/2" X 11" copy of a U.S.G.S. 7.5 minute topographic map with the accurate location of the well spotted on the map copy and identification of the topographic map.

Attach a certified map showing the well location.

Reviewed by:_____ Date:_____ _____Date: _____

Mines & Minerals District Supervisor **Commissioner-Mines & Minerals**

Original Well Operator:_____ Current Well Operator:_____

Original Oil/Gas Lease Name:_____ Current Lease Name:_____

Well Operator Number:_____ **Division of Oil & Gas Permit Number:**_____

Carter Coordinate Well Location

As listed by the Well Operator:	As surveyed by the Mine Licensee:
Sec:_____ Letter:___ Number:_____	Sec.:_____ Letter:___ Number:_____
_____FNL _____FEL	_____FNL _____FEL
_____FSL _____FWL	_____FSL _____FWL

Current Well Status:

☐ Producing ☐ Plugged and Abandoned ☐ Abandoned (Not producing or plugged)

In accordance with KRS 352.510, I have forwarded simultaneously to the well operator and to the Department of Mines and Minerals, by certified or registered mail, a copy of the maps and plans required by law to be filed and kept up to date, showing on the copy of the map or plan the mine workings and projected mine workings beneath the tract of land and within five hundred (500) feet of its outer boundaries. I further understand that the well operator may, within fifteen (15) days from his receipt of the copy of the map, file specific objections in writing to the mining operations and that no action on this application shall therefore be taken by the Department within that fifteen (15) day period.

_____ _____

Signature of mine operator or engineer Date

Information below to be completed by Division of Oil & Gas

Well Type: ☐ **Oil Well** ☐ **Gas Well** ☐ **Combination (Oil & Gas)** ☐ **Injection**

Well Completion Date:_____ County:_____

Total Depth:_____Ft. Producing Formation(s):_____

Reviewed By:_____ Date:_____

Oil & Gas Regional Supervisor

FORM - OG500 (REVISED 3/97)